



OCCUPATIONAL ANALYSIS

BUILDING AND CONSTRUCTION INDUSTRY



**JABATAN PEMBANGUNAN KEMAHIRAN
KEMENTERIAN SUMBER MANUSIA**

Department of Skills Development
Ministry of Human Resources, Malaysia

ABSTRACT

An Occupational Analysis (OA) is the process of identifying the work scope of the occupational sub-area in terms of competencies. It is used to analyse skilled human resource competency requirement for the industry. The development of the Occupational Structure is a preliminary process in developing relevant National Occupational Skills Standard (NOSS). The NOSS in turn will be developed to be used as the basis to conduct skills training and certification of competent personnel. This document is divided into several chapters, the first being an industrial overview highlighting the definition and scope of the industry, the current analysis of the local industry and its skilled worker requirements, Government bodies and development plans supporting the growth of the industry, then the next chapter will explain the methodology used in Occupational Analysis development such as qualitative and quantitative analysis through focus group discussion and statistical data analysis. Workshops were held to get a better understanding of the organisational structure, job titles, hierarchy objectives and main activities of the specified positions. The final chapters will present the findings of the Occupational Analysis that is translated into the Occupational Structures, levels of competencies and critical sub-areas. In order to conduct the Occupational Analysis on the Building & Construction Industry, all the information related to the aforesaid industry was gathered through literature/document review and further discussed in workshop sessions with experts from the industry. During the development workshops, the panel members identified **13 sub-sectors, 6 job areas and 24 sub job areas** that reflect the main category of Building & Construction Services Industry in Malaysia.

TABLE OF CONTENTS

CONTENTS	PAGES
ABSTRACT	i
LIST OF TABLES	iv
LIST OF FIGURES	vi
1. INTRODUCTION	1
1.1 Chapter Introduction.....	1
1.2 Background Study of Building & Construction Industry	1
1.3 Objectives.....	3
1.4 Scopes.....	4
1.5 Problem Statement	4
1.6 Conclusion	5
2. LITERATURE REVIEW.....	6
2.1 Introduction.....	6
2.2 Current NOSS.....	6
2.3 Main Stake Holders / Key Players / Training Providers.....	12
2.4 Current Analysis, Industrial Demand and Statistic.....	13
2.5 Supply and Demand of Skill Workers	14
2.6 International Benchmarking	23
2.7 Statutory & Regulatory Bodies.....	24
2.8 Related Policies, Act, Regulation and Standard for Industry	28
2.9 Conclusion	36
3. METHODOLOGY	38
3.1 Introduction.....	38
3.2 Research Design	38
3.3 Research Methodology	39
3.4 Data Analysis	41
3.5 Limitations.....	43
3.6 Conclusion	44



4. FINDINGS AND DISCUSSION	45
4.1 Introduction.....	45
4.2 Building & Construction Sector Overview.....	49
4.3 Building & Construction Occupational Structure (OS)	54
4.4 Occupational Definition (OD)	77
SUB-SECTOR 1/13: TOWN & COUNTRY PLANNING	78
SUB-SECTOR 2/13: BUILDING SURVEY	84
SUB-SECTOR 3/13: ARCHITECTURE	89
SUB-SECTOR 4/13: CIVIL AND STRUCTURE (C&S)	118
SUB-SECTOR 5/13: QUANTITY SURVEY	155
SUB-SECTOR 6/13: GEOMATICS & LAND SURVEY.....	162
SUB-SECTOR 7/13: MECHANICAL & ELECTRICAL ENGINEERING	192
SUB-SECTOR 8/13: LANDSCAPE ARCHITECTURE.....	212
SUB-SECTOR 9/13: SAFETY HEALTH & ENVIRONMENT	221
SUB-SECTOR 10/13: INDUSTRIALIZED BUILDING SYSTEM	242
SUB-SECTOR 11/13: CONSTRUCTION MACHINERY PLANT & OPERATION	292
SUB-SECTOR 12/13: BUILDING MATERIALS	348
SUB-SECTOR 13/13: FACILITY MAINTENANCE	363
4.5 Building & Construction Occupational Area Structure (OAS)	377
4.6 List of Critical Job Titles and Summary of Job Titles	390
4.7 Conclusion	395
5. CONCLUSION & RECOMMENDATION	395
5.1 Introduction.....	395
5.2 Conclusion	396
5.3 Recommendation	398
BIBLIOGRAPHY	402
ANNEX 1: MOSQF LEVEL DESCRIPTORS.....	405
ANNEX 2: LIST OF DEVELOPMENT PANEL, FACILITATORS, PROOF READER.....	408



LIST OF TABLES

TABLES	TITLE	PAGE
Table 1 :	Stake Holders List	12
Table 2 :	Training Providers List	13
Table 3:	Research Design	38
Table 4 :	Focus Group Session	40
Table 5 :	Overview Of Sub Sectors, Areas And Job Areas	45
Table 6 :	Table Separation Of Sub Sectors, Area And Job Areas	47
Table 7 :	Table Segregation Of Sub Sectors, Area And Job Areas	48
Table 8 :	Table Segregation Of Sub Sectors, Areas And Job Areas	49
Table 9 :	Occupational Structure (OS) For Town & Country Planning	54
Table 10 :	Occupational Structure (OS) For Building Survey	54
Table 11 :	Occupational Structure (OS) For Architecture	55
Table 12 :	Occupational Structure (OS) For Civil & Structure	55
Table 13 :	Occupational Structure (OS) For Quantity Survey	56
Table 14 :	Occupational Structure (OS) For Geomatics & Land Survey	57
Table 15 :	Occupational Structure (OS) For Geomatics & Land Survey	58
Table 16 :	Occupational Structure (OS) For Landscape Architecture	58
Table 17 :	Occupational Structure (OS) For Health, Safety & Environment	59
Table 18 :	Occupational Structure (OS) For Industrialized Building System (IBS) Manufacturing	60
Table 19 :	Occupational Structure (OS) For Industrialized Building System (IBS) Installation	61
Table 20 :	Occupational Structure (OS) For Construction Machinery Operators (Part 1 Of 3)	62
Table 21 :	Occupational Structure (OS) For Construction Machinery Operators (Part 2 Of 3)	63
Table 22 :	Occupational Structure (OS) For Construction Machinery Operations (Part 3 Of 3)	64
Table 23 :	Occupational Structure (OS) For Building Materials	65
Table 24 :	Occupational Structure (OS) For Civil & Structure For Construction (Part 1 Of 5)	66
Table 25 :	Occupational Structure (OS) For Civil & Structure For Construction (Part 2 Of 5)	67
Table 26 :	Occupational Structure (OS) For Civil & Structure For Construction (Part 3 Of 5)	68
Table 27 :	Occupational Structure (OS) For Civil & Structure For Construction (Part 3 Of 5)	69
Table 28 :	Occupational Structure (OS) For Civil & Structure For Construction (Part 4 Of 5)	70
Table 29 :	Occupational Structure (OS) For Civil & Structure For Construction (Part 5 Of 5)	71
Table 30 :	Occupational Structure (OS) For Quantity Survey For Construction	72
Table 31 :	Occupational Structure (OS) For Architecture Construction (Part 1 Of 2)	73
Table 32 :	Occupational Structure (OS) For Architecture Construction (Part 2 Of 2)	74
Table 33 :	Occupational Structure (OS) For Mechanical Engineering	75
Table 34 :	Occupational Structure (OS) For Electrical Engineering	75
Table 35 :	Occupational Structure (OS) For Safety, Health & Environment	76
Table 36 :	Occupational Structure (OS) For Facility Maintenance	76
Table 37 :	Occupational Area Structure (OAS) For Town & Country Planning	378
Table 38 :	Occupational Area Structure (OAS) For Building Survey	378



Table 39 : Occupational Area Structure (OAS) For Architecture	379
Table 40 : Occupational Area Structure (OAS) For Civil & Structure	379
Table 41 : Occupational Area Structure (OAS) For Quantity Survey	380
Table 42 : Occupational Area Structure (OAS) For Land Survey & Geomatics	381
Table 43 : Occupational Area Structure (OAS) For Mechanical & Electrical	382
Table 44 : Occupational Area Structure (OAS) For Landscape Architecture	382
Table 45 : Occupational Area Structure (OAS) For Safety, Health & Environment	383
Table 46 : Occupational Area Structure (OAS) For Industrialized Building System (IBS)	
Manufacturing	383
Table 47 : Occupational Area Structure (OAS) For Industrialized Building System (IBS)	
Installation	384
Table 48 : Occupational Area Structure (OAS) For Construction Plant & Machinery Operations	385
Table 49 : Occupational Area Structure (OAS) For Civil Engineering	387
Table 50 : Occupational Area Structure (OAS) For Quantity Survey	387
Table 51 : Occupational Area Structure (OAS) For Architecture Construction	388
Table 52 : Occupational Area Structure (OAS) For Mechanical Engineering	388
Table 53 : Occupational Area Structure (OAS) For Electrical Engineering	389
Table 54 : Occupational Area Structure (OAS) For Facility Management	389



LIST OF FIGURES

FIGURES	TITLE	PAGE
FIGURE 1 :	PROJECTS BY CATEGORY AND VALUE, 2011-2014	16
FIGURE 2 :	NUMBER OF PROJECTS BY CATEGORY 2011-2014	17
FIGURE 3 :	REAL GDP BY KIND OF ECONOMIC ACTIVITY, 2010-2015	18
FIGURE 4 :	GDP BY KIND OF ECONOMIC ACTIVITY, 2015-2020	19
FIGURE 5 :	JOBS CREATION BY SECTOR, 2011-2015	22
FIGURE 6 :	OCCUPATIONAL AREA STRUCTURE (OAS) FOR BUILDING MATERIALS	386



1. INTRODUCTION

1.1 Chapter Introduction

The Malaysia Occupational Skills Qualification Framework (MOSQF) is a framework that will be a unified system to bind and interlink all the qualifications awarded in Malaysia. The MOSQF will serve as an instrument that develops and classifies qualifications based on a set of criteria that are approved nationally and is at par with international good practices at the level of learning attained by the learners. This includes learning outcomes achieved and thus clarifying levels of learning. The criteria will be used and accepted by all Department of Skills Development (DSD) accredited centers. The MOSQF is developed based on the Malaysian Qualifications Framework (MQF) and also based on frameworks used and referenced by other countries such as England, Wales & Northern Ireland, Australia, New Zealand and Europe. Therefore the MOSQF will enable it to become a translation device to make qualifications more readable and understandable across different countries. The framework was developed in order to improve the current national training system for all parties of interest such as individuals, skills training providers, the Government, associations, professional bodies, the industry and the Malaysian community. The MOSQF has defined eight (8) levels of qualifications in Annex 1: MOSQF Level Descriptors.

1.2 Background Study of Building & Construction Industry

The Oxford dictionary explains that construction is the act or method of building. Construction means new construction, alteration, repairs, and demolition. Installation of any machinery or equipment which is built-in at the time of the original construction is included, as well as installation of machinery or equipment after the original construction but which requires structural alteration in order to be installed. Construction is to ensure that the industry is well positioned to support the nation's overall economic growth and to meet various challenges, such as the need to enhance



productivity and quality along the entire construction industry value chain.

Construction is a process that consists of the building or assembling of infrastructure. Far from being a single activity, large-scale construction is a feat of multitasking. Normally the project manager manages the job and supervised by the construction manager, design engineer, construction engineer or project architect.

The building construction industry has an obligation and a responsibility to ensure that development is taking place today and the pursuit of wealth must not be done at the expense of the quality of life of future generations.

It is for this very reason that development of a Construction Industry Master Plan becomes imperative. Malaysia has developed the Construction Industry Master Plan covering the period of 2006 – 2015. The construction sector continues to be an essential element of the Malaysian economy, which lends strength and capability to a host of economic sectors and supports the social development of the country through the provision of basic infrastructure.

Taking advantage of global opportunities will allow the Malaysian construction industry to reduce the effects of the domestic market condition and have greater control over its own development. Since 1986, a total of 328 projects in excess of RM 22 billion have been completed- mainly in India, the Middle East and the ASEAN regions. In addition, 84 projects remain underway (since 1986) with a total value of RM 39 billion. “Resource, Construction Industry Master Plan Malaysia 2006 – 2015” is a copyright reserve of the Construction Industry Development Board.

The focus of overseas projects has mainly been in infrastructure works – such as building and road/ highway projects – which are areas of export specialty for Malaysian contractors. The export activities of other Malaysian industries also provide



opportunities for the construction sector. In 2004 alone, the oil and gas industry saw major partnership deals and opportunities arise in India, Indonesia, and China. Although non-construction Malaysian companies secured these projects mentioned, it would be beneficial if these non-construction Malaysian companies could also tie-up with Malaysian contractors as part of the overseas expansion plan.

In order to continue leveraging on domestic opportunities and to compete in the global marketplace, the Malaysian construction industry players need to address a number of key strategic and operational challenges. There is a need to take a holistic approach when reviewing the factors impacting the construction industry value chain. Improvements need to be implemented by all parties along the entire construction industry value chain for lasting transformation to occur. Therefore, in addition to contractors, clients, approving authorities, consultants and other stakeholders must be involved in this transformation.

1.3 Objectives

The objectives of this Occupational Analysis are as below:

- I. To identify the Occupational Structure and Occupational Area Structure of the Building & Construction Industry; and
- II. To identify critical and non-critical occupations within the employment structure of the building & Construction industry based on supply and demand data in which to be obtained from secondary database.



1.4 Scopes

The scope of this occupational analysis is relevant to the objectives above are as follows:

- I. Objective 1: To identify the Occupational Structure (OS) and Occupational Area Structure (OAS) of the Building & Construction Industry.

The scope of this particular OA is focused on the Building & Construction industry and all sub-sectors that are defined to be under the Building & Construction industry in terms of manufacturing with the use of Building & Constructions and the manufacturing of Building & Construction based products.

- II. Objective 2: To identify critical and non-critical occupations within the employment structure of the building & Construction industry based on supply and demand data in which to be obtained from secondary database.

Regarding this objective, corresponding scope is built around identifying critical and non- critical job titles within areas of subsectors. This initiative is expected to assist government authorities to formulate appropriate corresponding job training programs to create optimum employment environment where supply matches demand in accordance to its priority hierarchy.

1.5 Problem Statement

There have been various National Occupational Skills Standard (NOSS) documents developed for the Building & Construction Industry covering areas of building survey, architecture, machinery operations and industrialized building system (IBS) (Details of the existing NOSS relevant to the Building & Construction Industry are included in Chapter 2). The challenge of this Occupational Analysis is to continue updating the



previously done similar exercise on Building & Construction Industry and bring it up to current status. This continuous initiative is expected to crystalize better career paths in the industry.

1.6 Conclusion

In the light of continuous economic development in the Building & Construction Industry, the demand for skilled personnel has increased thus the development programs for skilled manpower is timely. By going through the mechanism provided by the Skills Training system in Malaysia, one of the important steps is to identify the Occupational Structure of the Building & Construction Industry. With the Occupational Structure clearly defined, the industry stakeholders will be able to identify areas that will require more intensive efforts in human capital development. Although there have been past efforts in National Standards Development for the industry, the need for an Occupational Analysis is required to determine the overall areas that may not yet have been focused on. Occupational Analysis is expected to serve as the 'blueprint' of the manpower planning for the Building & Construction Industry.



2. LITERATURE REVIEW

2.1 Introduction

This chapter will focus on the explanation of the Building & Construction sector, the current scenario in Malaysia, introduction to relevant acts, government bodies and benchmark countries pertaining to the Building & Construction sector.

Findings in this chapter were obtained via literature review, observations, and interviews with industry practitioners and discussions during workshops with development panel members. This literature review is also discussed with panel members to obtain insight on the matters at hand from a practitioner's perspective.

2.2 Current NOSS

There have been various National Occupational Skills Standard (NOSS) developed for the Building & Construction sector before. Therefore in order to identify the latest overall structure and career paths in the industry, the Occupational Analysis (OA) of the Building & Construction for this development have been updated to reflect the current needs. With regards to analysing the sector of Building & Construction industry, the existing National Occupational Skills Standard (NOSS) and Occupational Structure documents were referred. In the DSD's NOSS Registry as of March 2015, the latest OA sub-sectors of Building & Construction developed NOSS has a total of **181** job titles from Level 1 until Level 5 and the sub discipline are outlined in the following sequence:

2.2.1 Civil Engineering

Civil Engineering is all about improving and protecting the world of human living. It involves the planning, design and construction of facilities that are required for everyday living, industry and transport. It offers a challenging and wide-ranging career which can include the development of airports, offshore oil platforms, bridges, roads, railways,



waste collection and treatment systems, and water supply systems. Civil engineering also aims to solve environmental issues such as air pollution, coastal protection and waste treatment. Civil engineers design, construct and maintain the infrastructure and facilities that are essential to society. Their work includes complex problem solving on projects which are influenced by a mixture of technical, economic, social and environmental factors. As per to date, numbers of NOSS developed according to the job title for this sub sector is **97** in total.

- Level 1 – 31 NOSS
- Level 2 – 32 NOSS
- Level 3 – 28 NOSS
- Level 4 – 3 NOSS
- Level 5 – 3 NOSS

2.2.2 Structural

Structural engineering is usually considered a specialty discipline within civil engineering, but it can also be studied in its own right. In certain countries in the world including Malaysia, most practicing structural engineers are currently licensed as civil engineers, but the situation varies from state to state. Typical structures designed by a structural engineer include buildings, towers, stadia and bridges. Other structures such as oil rigs, space satellites, aircraft and ships may also be designed by a structural engineer. Most structural engineers are employed in the construction industry, however there are also structural engineers in the aerospace, automobile and shipbuilding industries. In the construction industry, they work closely with architects, civil engineers, mechanical engineers, electrical engineers, quantity surveyors, and construction managers. Structural engineers ensure that buildings and bridges are built to be strong enough and stable enough to resist all appropriate structural loads such as gravity, wind, snow, rain, seismic (earthquake), earth pressure,



temperature and traffic; in order to prevent or reduce loss of life or injury. They also design structures to be stiff enough to not deflect or vibrate beyond acceptable limits. Human comfort is an issue that is regularly considered in the limits. Fatigue is also an important consideration for bridges and for aircraft design or for other structures which experience a large number of stress cycles over their lifetimes. Consideration is also given to durability of materials against possible deterioration which may impair performance over the design lifetime. The job titles of NOSS developed for structural sub sector as at March 2015 are **27** in total. The break down as follow:-

- Level 1 – 11 NOSS
- Level 2 – 7 NOSS
- Level 3 – 9 NOSS
- Level 4 & 5 – Not Available

2.2.3 Architectural

Architectural engineering is the blend of the fundamental principles of engineering with knowledge of all building systems, while using new and emerging technologies, to plan and design integrated building systems, such as acoustics, communications and controls, electric power, lighting, mechanical (heating, ventilation and air-conditioning) and also structural. A total number of **6** NOSS developed for this sub sector as to date.

- Level 1 – 1 NOSS
- Level 2 – 1 NOSS
- Level 3 – 2 NOSS
- Level 4 – 1 NOSS
- Level 5 – 1 NOSS



2.2.4 Machinery & Plant

“Machinery” is a collective term for machines and their parts. A machine is considered to be any apparatus that has interrelated parts and is used to perform work and ‘plant’ is a general name for machinery, equipment, appliance, implement or tool and any component or fitting or accessory of these. It can include things as diverse as presses in a foundry, underground drill jumbos in mining and photocopiers in an office. It can range from electric drills, lifts, escalators, tractors, haulpaks, hand trolleys, cranes, and excavator to arc welding gear and the list goes on. Fittings, connections and accessories are also considered to be plant. Employees will require special training if they have no previous experience in the tasks with which they are to be involved. A total of **30** NOSS for the job titles under this sub sector as at March 2015.

- Level 1 – 3 NOSS
- Level 2 – 22 NOSS
- Level 3 – 5 NOSS
- Level 4 & 5 – Not Available

2.2.5 Industrialized Building System

The Industrialized Building Systems (IBS) is a construction process that utilizes techniques, products, components, or building systems that involve prefabricated components and on-site installation. The use of IBS assures valuable advantages such as the reduction of unskilled workers, less wastage, less volume of building materials, increased environmental and construction site cleanliness and better quality control, among others. These advantages also promote a safer and more organized construction site, and reduce the potential of over-run of construction project. The quality of buildings is increased when using IBS due to quality control inside the factories and



employing skilled and semi-skilled workers. There is shortage of IBS experience among engineers in Malaysia due to shortage in educational and specialized training. Current NOSS available as to date is only **9**. Details are as follow:-

- Level 1 – 3 NOSS
- Level 2 – 3 NOSS
- Level 3 – 3 NOSS
- Level 4 & 5 – Not Available

2.2.6 Construction Site Supervisor

A Civil Construction Site Supervisor played important roles to monitors ongoing construction to ensure that the work is being done correctly and the project stays on schedule. The expertise focuses on civil construction projects such as building, bridges, highways and airports. Experience in public works or civil engineering is also required for most supervisory positions and also familiar with the construction and material specifications for the infrastructure in the local area. As per to date, numbers of NOSS of the job title developed for this sub sector is **10** in total.

- Level 1 – 1 NOSS
- Level 2 – 1 NOSS
- Level 3 – 5 NOSS
- Level 4 – 3 NOSS
- Level 5 – Not Available



2.2.7 Building Maintenance

Building Maintenance is skilled work involving a variety of building maintenance and repair tasks. The experts involved in a variety of mechanical trades, such as painting, electrical, carpentry, plumbing or as necessary. Responsible for various field of work associated and keeping a building in excellent shape in terms of visual appeal, function as well as safety for the individuals in the building. The NOSS developed for this field of discipline as to date is only **2**.

- Level 1 – Not Available
- Level 2 – 1 NOSS
- Level 3 – 1 NOSS
- Level 4 & 5 – Not Available



2.3 Main Stake Holders / Key Players / Training Providers

Main Stake Holders / Key Players

Some of the main stake holders are identified below:

Table 1 : Stake Holders list

No	Stake Holders
1	Ministry Of Works Malaysia
2	Public Works Department Malaysia
3	Construction Industry Development Board (CIDB)
4	Ministry Of Housing And Local Government
5	Board Of Engineers Malaysia
6	Board Of Architects Malaysia
7	Department Of Occupational Safety And Health (DOSH)
8	Malaysian Fire And Rescue Department
9	The Royal Institution Of Surveyors, Malaysia
10	Town And Country Planning Department, Malaysia
11	The Malaysian Institute Of Planners
12	Department Of Irrigation And Drainage, Malaysia
13	Department Of Forestry, Malaysia
14	Department Of Environment, Malaysia
15	Department Of Survey And Mapping, Malaysia
16	Energy Commission Of Malaysia
17	Ministry of Natural Resources And Environment
18	Minerals and Geoscience Department Malaysia
19	Malaysia Meteorological Department
20	Ministry Of Science Technology And Innovation
21	Local Authorities
22	Ministry of Human Resources
23	Ministry Of Transport
24	Malaysian Institute Of Road Safety Research (MIROS)
24	Department Of Civil Aviation
25	Marine Department
26	Malaysian Land Surveyors Board
27	Institute Of Engineers
28	National Water Services Commission (SPAN)



Training Providers

In this sub-section, training provider is associated with academic and non-academic entities providing relevant certification in knowledge and skills to the workforce of the industry. Listed below are those entities named in specific and its broader classification.

Table 2 : Training Providers list

No	Training Providers
1	Malaysian Construction Academy
2	National Institute For Occupational Safety & Health (NIOSH)
3	Public and Private Universities and Colleges
4	Skills Training Centres

2.4 Current Analysis, Industrial Demand and Statistic

The Malaysian building sector is set to continue expanding in 2015 as new projects, foreign investment and increased outlooks among construction firms stimulate the industry and the wider economy. That is the key finding in the new Equity Strategy Outlook 2015 report by M&A Securities, which notes that new projects will help to spearhead the sector in the coming months and ensure an "energetic and enthusiastic" 2015. The construction industry grew 10.9% in 2013 with projects valued at RM124 billion, of which 30% or RM38 billion were residential projects. The industry grew at the rate of 14.3% in the first half of 2014 with projects worth RM69 billion carried out until 3Q 2014. 39% of the projects valued at RM27 billion were non-residential projects, 33% were residential projects (RM23 billion), 22% were infrastructure projects (RM15 billion) and 6.0% were social services (RM4 billion). Regionally within Malaysia, the over development of serviced apartments in Iskandar, Johor has resulted in a freeze on all new applications for them by the Johor state, which may dampen the industry slightly



towards the end of 2015. The CIDB reports that the GST increment will have minimal impact upon the construction industry. Similarly, the Malay Contractors Association of Malaysia (PKMM) does not anticipate that the weakening of the Ringgit would dampen the construction industry. In addition, CIDB anticipates private sector participation in projects to increase from 30% in 2013 to 50%, by end-2015. The private sector is the biggest contributor to the construction industry, having contributed RM57 billion in the first three quarters of 2014. According to the Construction Industry Development Board (CIDB), the industry's growth is expected to remain strong over their forecast period of 2013 – 2018. With the reduction in oil revenue, it is generally believed that the government may cut spending and postpone some major public projects. In the short term till 1H 2015, construction costs are anticipated to remain sustainable despite the expected shrinkage of construction demand volume. Transportation costs are expected to move in tandem with the oil price while manpower shortages are expected to drive up labour costs. Construction costs are also impacted by the implementation of GST and the projected rise in inflation due to domestic cost factors. Barring any unforeseen market conditions, building tender prices in Kuala Lumpur are anticipated to increase by about 3.5% to 4.0% in 2015.

2.5 Supply and Demand of Skill Workers

In order to match the growth and expansion of the sector, labour market in an advanced nation is characterized by effective market clearance that matches supply with demand and comprehensive labour market support system. During Tenth Malaysia Plan, 2011-2015, progress achieved includes increase in job creation and strengthening of the labour market institution. The Eleventh Malaysia Plan, 2016-2020, strategic shifts have been formulated to elevate the labour market efficiency which aims to improve the productivity, wage structure and create the quality job; improve labour market legislation and information; and effectively manage low-skilled foreign workers.



Emphasis will be given to fulfil the labour requirements of industry in the economy. The Government will improve labour productivity and create more job opportunities that require highly-skilled workers. Technical and Vocational Education and Training (TVET) will shift towards industry-led programs to produce the skilled talent to meet industry needs. The existing workforce will have many opportunities to continuously enrich and develop themselves, so as to stay relevant in the changing economy. Above all, the quality of education will be raised to develop talent with both the knowledge and skills, and ethics and morality, to thrive in a globally competitive and dynamic environment. The RMK11 will focus on transforming the construction industry by enhancing knowledge content, driving productivity, fostering sustainable practices and increasing global competitiveness, in line with the Construction Industry Transformation Program (CITP), 2016-2020. Greater collaboration will be fostered between the industry and Institution of Higher Learning (IHL) to ensure talent produced by the education system meet industry requirement. Regular manpower planning will be undertaken to reduce mismatch between labour demand and supply.

Building & Construction personnel are responsible for the services that make a building function: the lighting, power, ventilation, heating, cooling, water services and so on. Their input begins before construction starts and extends well into the operational life of a building. Before land is even purchased by a client, building & construction engineers assess its suitability for construction, looking at such factors as whether the land is contaminated and how easy it will be to connect services to supply lines.

They then work with the client, architects and structural engineers to develop and agree a brief for the building, which is then turned into a design to be installed by a contractor. Once construction begins, building services engineers monitor the performance of the installers to ensure the services are completed according to the design. They may also manage the maintenance of the services when the building is completed.



The derived demand construction industry, recorded a double digit average annual growth rate of 11.1% during the Tenth Malaysia Plan (RMK10), faster than the overall economy which grew by 6.3%. In 2015, the construction sector is estimated to contribute 4.5% to the GDP supported by strong growth in civil engineering and non-residential subsectors. The sector provided 1.2 million jobs which constituted 8.9% of the total workforce in the Plan period. For a period from 2011 to 2014, a total of 29,435 construction projects, valued at RM470 billion were awarded. Private sector projects contributed RM387 billion, or 82% from the total value of the projects, while the remaining RM83 billion was contributed by public sector. The number of construction projects and value are shown in **Figure 1** and **Figure 2**.

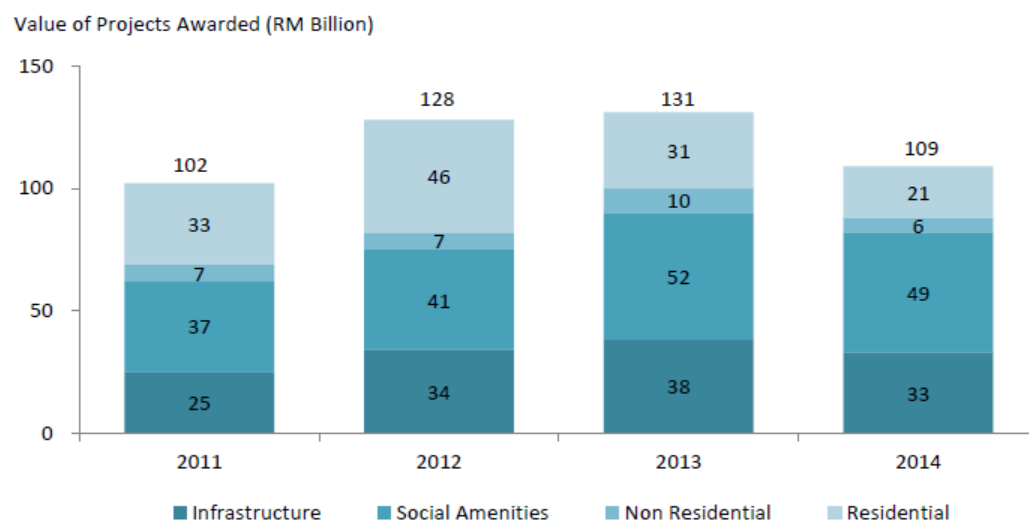


Figure 1 : Projects by Category and Value, 2011-2014

Source: Construction Industry Development Board Malaysia (CIDB)



Sector	2011	2012	2013	2014
Residential	2,253	2,276	2,302	1,716
Non-residential	2,661	2,847	2,995	2,085
Social Amenities	820	906	723	523
Infrastructure	1,991	1,863	2,008	1,466
Total	7,725	7,892	8,028	5,790

Figure 2 : Number of Projects by Category 2011-2014

Source: Construction Industry Development Board Malaysia (CIDB)

Despite registering vibrant growth, productivity of the construction sector is low due to limited modernization of construction methods and practices, low technology adoption as well as the reliance on low-skilled labour. Approximately 34% of the construction workforce is foreign, of which 93% are low-skilled. The issue on high dependency on low-skilled labour is further compounded by the presence of illegal foreign labour.

Another statistic reference that can be seen and compared to the current needs of demand & supply on the growth of the industry; increasing demand in development of Building & Construction versus the availability of our local skilled workers. During the development of this document, reviews of all sectors expected to expand during the Tenth Plan period, as shown in **Figure 3**. The structure of the construction sector is estimated to increase from 3.4% in 2010 to 4.5% by 2015. The construction sector again, is estimated to expand by 10.3% per annum during the Eleventh Malaysia Plan period as illustrated in **Figure 4**. This is attributed to continued civil engineering works and a growing residential subsector to fulfil the demand for housing, particularly from the middle-income group. Demand for affordable housing by the low-income group will also remain favourable, which will be supported by several Government initiatives, such as Program Perumahan Rakyat 1Malaysia (PR1MA), Rumah Idaman Rakyat and Rumah Mesra Rakyat 1Malaysia. Other subsectors such as civil engineering and non-residential will remain robust in line with the development of major projects such as the Tun Razak



Exchange, KL118 Tower, Refinery and Petrochemical Integrated Development (RAPID), and the Pan-Borneo Highway.

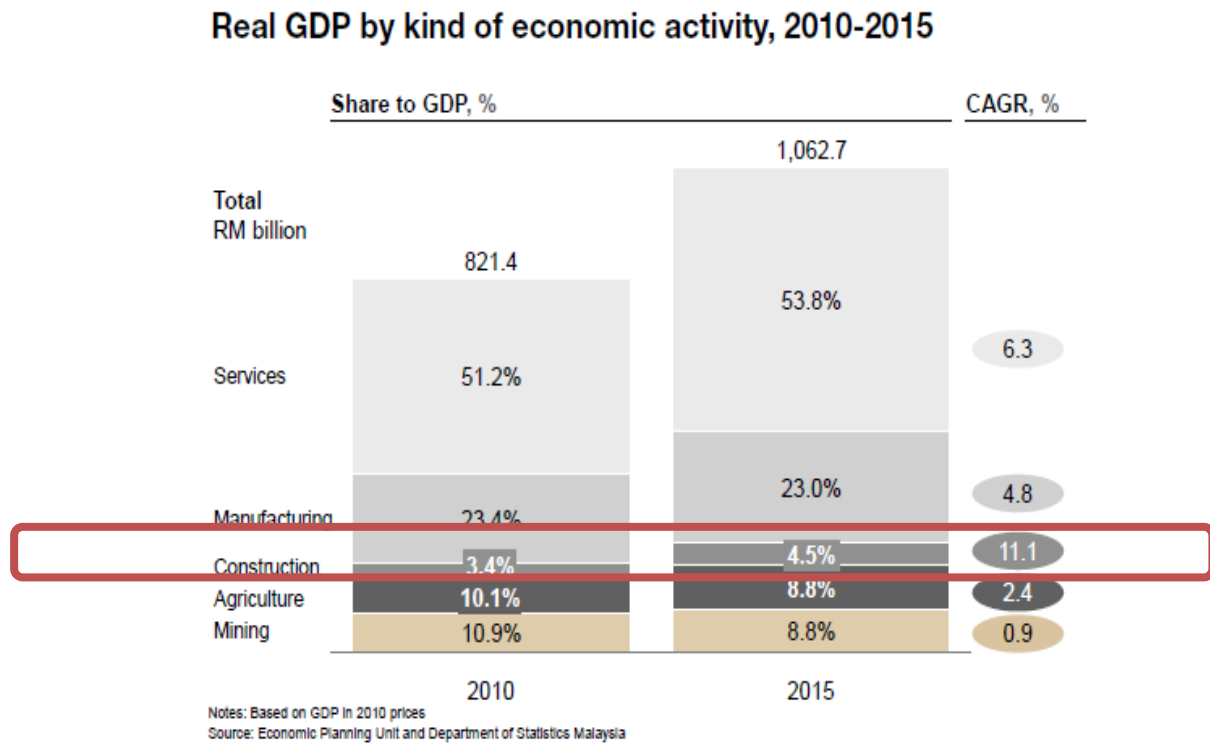


Figure 3 : Real GDP by kind of economic activity, 2010-2015



GDP by kind of economic activity, 2015-2020

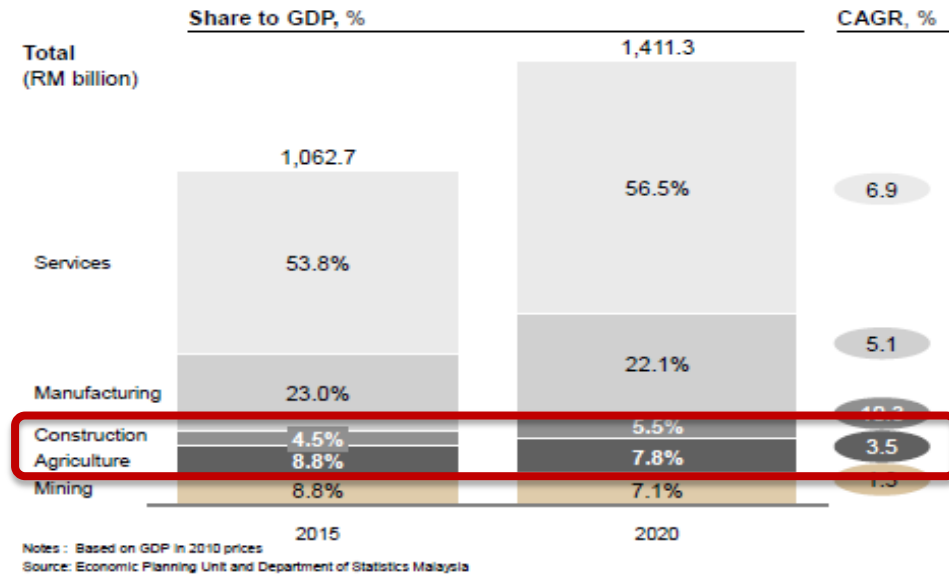


Figure 4 : GDP by kind of economic activity, 2015-2020

In the Eleventh Malaysia Plan (RMK11), 2016-2020 The Government has identified six game changers, which are innovative approaches to accelerate Malaysia's development that once successfully applied, will fundamentally change the trajectory of the country's growth.

- I. **Unlocking the potential of productivity**
- II. Uplifting B40 households towards a middle-class society
- III. **Enabling industry-led Technical and Vocational Education and Training (TVET)**
- IV. Embarking on green growth
- V. Translating innovation to wealth
- VI. Investing in Competitive Cities

Four of these game changers are critical to the development of an advanced economy, aiming to unlock productivity for accelerated sectoral growth; unleash innovation to



generate new sources of revenue; harness TVET for the transition to a higher-skilled workforce; and develop cities as a source of competitiveness.

During the RMK11, real GDP is targeted to expand between 5%-6% per annum. The GNI per capita is expected to reach US\$15,690 (RM54, 100) and therefore exceed the estimated US\$15,000 minimum threshold of a high-income economy. The Plan is expected to create 1.5 million jobs by 2020, with targeted improvements in labour productivity through the continuous shift from labour-intensive to knowledge-based and innovation-based economic activities. Growth will be driven by the private sector with private investment expanding at 9.4% per annum. All economic sectors will witness strong growth with the manufacturing and services sectors contributing more than 75% of GDP. **Figure 5** shows the job creation from 2011-2015.

Under the RMK11, 60% of the 1.5 million jobs that will be created will require TVET-related skills. Meeting this demand will require Malaysia to increase its annual intake gradually from 164,000 in 2013 to 225,000 in 2020. Industry feedback consistently reveals a disconnection between the knowledge, skills, and attitudes these graduates possess, and what is required in the workplace. To address these issues, an effective and efficient TVET sector needs to be implemented:

- Supply matches demand, and there are robust quality control mechanisms which ensure that all public and private institutions meet quality standards;
- Industry and TVET providers collaborate across the entire value chain from student recruitment, through to curriculum design, delivery, and job placement; and
- Students are well-informed of the opportunities that TVET can offer and view TVET as an attractive pathway. Students also have access to a variety of innovative, industry-led programmes that better prepares them for the



workplace. **Figure 6** explained about the plan that have been highlighted in RMK 11 for the year of 2016-2020

During the Tenth Plan, efforts to mainstream and broaden access to quality TVET were carried out to address industry demand for skilled workers and improve public perception of TVET as a career pathway. These efforts resulted in an increased intake from 113,000 in 2010 to 164,000 in 2013.

A TVET Task force led by the Malaysian Qualifications Agency (MQA) under Ministry of Education (MoE) and Department of Skills Development (DSD) under MoHR was established in 2012 to coordinate delivery and improve efficiency among different institutions. One initiative involved the rationalization of programmes offered by public TVET institutions to avoid duplication as well as enhance specialization. In addition, the Skim Kemahiran dan Kerjaya 1Malaysia (SKK1M) was introduced in 2012 as a platform for TVET graduates to secure employment. 10,400 TVET graduates benefited from this scheme at the end of 2014.

Prior to 2011, the role of the *Bahagian Pengurusan Kemasukan Pelajar (BPKP)* under MoE, formerly known as Unit Pusat Universiti, was to coordinate all applications to public universities. In 2011, its mandate was expanded to include public TVET institutions to better reflect student preferences and the availability of training places. Based on existing tracer studies for IHEs and selected public TVET institutions, a Centralized Tracer Study system was customized and expanded to all public TVET institutions in 2013. The graduate employability data collected through this Study enabled better coordination in reporting programme outcomes.

21 Industry-Lead Bodies (ILB) were established under the DSD of MoHR to align the TVET curriculum with industry requirements and prepare the National Occupational



Skills Standard (NOSS). A total of 582 NOSS and 16 Occupational Analysis were developed for reference by TVET institutions during the Tenth Plan. The National Dual Training System (NDTS) which provides industry-oriented workplace training has benefited 63,000 employees since its introduction in 2004. 38,000 employees benefited during the Tenth Plan including 12,835 youth who had newly entered the labour market.

A big shift in TVET delivery was driven by the conversion of the existing 72 Vocational Schools and eight Technical Schools run by the MoE into vocational colleges, as well as the setting up of eight new colleges. These new institutions offer students the opportunity to begin TVET education as early as 16 years and to graduate with a diploma. From 2011 to 2014 – 19,747 students enrolled, with the first batch of 2,700 students expected to graduate in 2016. The Vocational College curriculum is also offered in partnership with other public TVET institution including Institut Latihan Perindustrian (ILP), under MoHR.

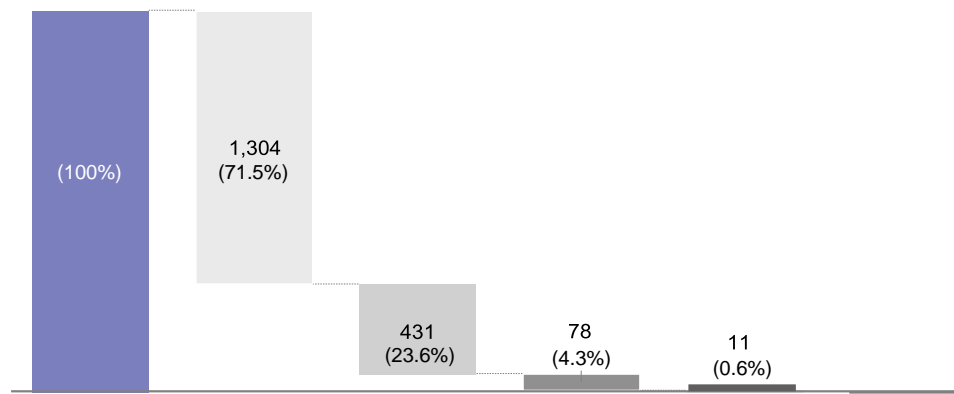


Figure 5 : Jobs creation by sector, 2011-2015

Total number of jobs created Services Manufacturing **Construction** Agriculture -1(-0.1%)
Mining and quarrying

Source: Economic Planning Unit and Department of Statistics Malaysia

1 2014 female labour force participation rate is 53.6%

2 Based on the definition set by the Organisation for Economic Co-operation and Development (OECD), an unemployment rate below 4% is considered full employment.



2.6 International Benchmarking

Benchmarking is a standard or set of standards, used as a point of reference for evaluating performance or level of quality. Benchmarks may be drawn from an industry's own experience, from the experience of other similar industries, or from legal requirements such as environmental and safety regulation.

The Building & Construction industry faces challenges at national, regional and international levels from increasingly more complex projects, declining project backlogs, and limited new project engagements due to ongoing economic uncertainty. As a result the industry is experiencing increasing competition from existing and new, diversifying competitors. Our global B&C team believes it is essential for engineering & construction firms to focus on the following key goals:

- Increasing efficiency – cost optimization and supply chain efficiency are just two examples of how firms are able to protect margins by managing cost and thus issuing competitive tender submissions while still maintaining profitability.
- Identifying competitive advantage – firms have to effectively assess their competitive advantages and shortcomings when it comes to winning new work. With increasing focus on processes, procedures and risk management, firms are seeing an increase in the number of hoops needed to leap through, particularly for publicly funded projects. Understanding where the opportunities lie and early identification of the gaps needed to be filled to secure those opportunities is keys to protecting future orders.
- Mitigating issues – risk management processes and accounting policies continue to attract significant focus following a number of high profile issues in the



industry. Ensuring issues are identified and mitigated as early as possible is vital to achieving the two goals above by protecting future profits and preventing negative press.

- Growth – even in challenging times, it is important that firms keep strategic growth opportunities in mind. With stiff competition in home markets, some firms are developing an appetite for expanding overseas, either through M&A or organically. As expected, there is strong interest in Asia, the Middle East, Australia, Africa and India. Expansion can also come in the form of adding new services or creating an integrated offering in order to serve new clients.

2.7 Statutory & Regulatory Bodies

- i. Construction Industrial Development Board ACT 1994 (CIDB) (ACT 520) (ACT A1407) (Amendment) 2011

CIDB is a statutory body established under the parliament Act 520 on December 16, 1994. An Act to establish “*Lembaga*” and to provide for its functions relating to the construction industry and for matters connected therewith. The construction industry plays an instrumental role in a country’s development. It acted as the catalysts to growth of others sectors in the nation’s economy and as such, the industry has often been referred to as the ‘engine of growth’. The Government has set up the CIDB to provide the effective of leadership and coordination among the players in the construction industry and enable them to move towards global competitiveness. The main objective that the Government set up CIDB is to develop the construction industry is to be the one of the major contributing sectors to the national economy, capable of producing and delivering high quality of works and human resources, value for money and able to response the nation’s need.



ii. Department of Safety & Health (DOSH)

The Department of Occupational Safety and Health (DOSH) is a department under the Ministry of Human Resources. This department is responsible for ensuring the safety, health and welfare of people at work as well as protecting other people from the safety and health hazards arising from the activities sectors which include

- Manufacturing
- Mining and Quarrying
- Construction
- Hotels and Restaurant
- Agriculture, Forestry and Fishing
- Transport, Storage and Communication
- Public Services and Statutory Authorities
- Utilities - Gas, Electricity, Water and Sanitary Services
- Finance, Insurance, Real Estate and Business Services
- Wholesale and Retail Trades

As a government agency, the department is responsible for the administration and enforcement of legislations related to occupational safety and health of the country, with a vision of becoming an organisation which leads the nation in creating a safe and healthy work culture that contributes towards enhancing the quality of working life.

iii. National Institute of Occupational Safety and Health (NIOSH)

The National Institute of Occupational Safety and Health (NIOSH) was launched on 1st December, 1992, after careful preparation and commitment from all parties to improve the safety and health of workers at the workplace in Malaysia.



In the words of the Minister of Human Resource, Malaysia, NIOSH would be a “critical catalyst” in the promotion of occupational safety and health that would also serve as the ‘backbone’ to create a “self-regulating occupational safety and health culture” in Malaysia.

iv. Public Works Department (Jabatan Kerja Raya)

JKR also known as the Public Works Department (PWD) in English term. Established in 1872 to build infrastructure for socio-economic development and political systems of the English government in the Straits Settlement comprising of Singapore, Malacca, Perak, Seberang Perai and Penang. Today, Jabatan Kerja Raya (JKR) is the foremost technical department in national infrastructure development. JKR provides multidisciplinary expertise that ensures best practice in technical consultancy, project management and asset/facilities maintenance.

v. Malaysian Institute Of Road Safety Research (MIROS)

The Malaysian Institute of Road Safety Research (MIROS) was established in 2007 as an agency under the Ministry on Transport Malaysia to serve as a central repository of knowledge and information on road safety. The findings derived from research and evidence-based intervention programmes provide the basis for the formulation of new strategies, legislations, policies, and enforcement measures, governing road safety at the national level.

Principally engaged in research, MIROS collaborates closely with local and international government agencies and private bodies to further the cause of road safety, serving as a one-stop centre for the generation and dissemination of road safety information and data.



- Conduct high impact research that will be translated into road safety policies.
- Develop national objectives, policies, and priorities for the orderly development and administration of road safety research.
- Enhance and increase knowledge based on new developments in issues related to road safety.
- Serve as an audit and accreditation agency in curriculum design and standards on road safety.
- Propose evidenced based cost-effective interventions/ programmes.
- Serve as a repository of knowledge and linkage on road safety.
- Serve as a centre providing consultation and advice on road safety issues.

vi. Department Of Civil Aviation Malaysia (DCA)

DCA is established as an agency under the Ministry of Transport (MOT) Malaysia to provide safe, efficient and orderly flow of air transportation, and to regulate aviation activities in Malaysia. The rapid expansion of Malaysia's aviation and air transport industries is largely due to the pragmatic approach taken by DCA in ensuring compliance to standards and recommended practices of the International Civil Aviation Organization (ICAO).



2.8 Related Policies, Act, Regulation and Standard for Industry

- i. Building and Common Property (Maintenance and Management) Act 2007-
(Maintenance and Management) Act 663

An Act to provide for the proper maintenance and management of buildings and common property, and for matters incidental thereto. Whereas it is expedient for the purposes only of ensuring uniformity of law and policy with respect to local government to make laws relating to the maintenance and management of buildings and common property within Peninsular Malaysia and the Federal Territory of Labuan.

This act acknowledges that developer is not relieved of his responsibility from damages in the post construction phase of a residential building like condominium and apartments (strata title).

- ii. Civil Aviation Act 1969 – ACT 3

An Act to make better provision in the law relating to Civil Aviation and for matters connected therewith and ancillary to it and shall extend throughout Malaysia. One of section stated in the act was in *Part IV CONTROL OF OBSTRUCTIONS IN VICINITY OF AERODROMES*:

- Indication of presence of obstructions near aerodromes
- Power to declare a controlled area
- Power to prohibit or regulate erection of structures and planting trees in controlled area.



- Notice to remove or alter structures, trees and other vegetation in controlled area:

iii. Occupational Safety and Health ACT 1994 (ACT 514) (OSHA)

The Occupational Safety and Health Act 1994 (Act 514) is Malaysian legislation which has been gazette on the 25 February 1994 by the Malaysian Parliament. The principal of the Act is *“To make further provision for securing that safety, health and welfare of persons at work, to protecting others against risks to safety or health in connection with the activities of persons at work, to establish the National Institute for Occupational Safety and Health and for matters connected therewith”*.

The Act applies throughout Malaysia to the industries specified mentioned as below:

- Manufacturing
- Mining and Quarrying
- Construction
- Agriculture, Forestry and Fishing;
- Utilities
- Transport, Storage and communication
- Wholesale and Retail Trades
- Hotel and Restaurants;
- Finance, Insurance, Real Estate and Business services; and
- Public Services and Statutory Authorities



iv. Environmental Quality Act, 1974

The legislation that is related to the prevention, abatement, control of pollution and enhancement of the environment in Malaysia is the *Environmental Quality Act, 1974*. The Act restricts the discharge of wastes into the environment in contravention of the acceptable conditions. To date 38 sets of Regulations and Orders as per Appendix A in the act have been introduced and enforced. The Director General of Environmental Quality has been appointed by the Minister to administer this Act and any regulations and orders made thereunder. The environmental requirements stated under *The Environmental Quality Act (EQA), 1974 and the Regulations* thereunder, industrial activities are required to obtain the following approvals from the Director General of Environmental Quality prior to project implementation:

- Environmental Impact Assessment reports - under *Section 34A of the EQA, 1974* (for prescribed activities);
- Site suitability evaluation (for non-prescribed activities);
- Written permission to construct - under *Section 19 of the EQA, 1974* (for prescribed premises-scheduled wastes treatment and disposal facilities, crude palm oil mills and raw natural rubber processing mills);
- Written approval for installation of incinerator, fuel burning equipment and chimney – under *Environmental Quality (Clean Air) Regulation, 1978, EQA, 1974*; and
- License to use and occupy prescribed premises and prescribed conveyances - under *Section 18 of the EQA, 1974*.



v. National Green Technology Policy (NGTP) 2009

The launch of the National Green Technology Policy (NGTP) in 2009 is a manifesto of the government's seriousness in implementing "green" initiatives for the country. These include among others intensification of green technology research and innovation towards commercialization, promotion and public awareness of green technology. Specifically for buildings, the government promotes the application of renewable energy (RE) and energy efficiency (EE) in buildings such as solar photovoltaic (PV), rainwater harvesting, phasing out of incandescent lights, and the application of green building index.

vi. Industrialized Building System Policy – Jabatan Kerja Raya

A circular endorsed by Ministry Of Finance (MOF) given to all Ministries, Heads of Departments, State Government, Statutory Bodies & Local Authorities (*Surat Pekeliling Perbendaharaan Bil.7 2008*). An open system through the use of modular coordination MS 1064. All constructions developer, contractors from private or public sector need to implement 70% of their IBS components in Government Projects. KKR appointed as Coordinator of the Secretariat of the National IBS. The Implementation Coordination Unit (ICU), was established by Prime Minister's Department as monitoring body whilst IBS Center for referral center.



vii. National Policy On The Environment

The National Policy on the Environment which integrates the three elements of sustainable development: economic, social and cultural development and environmental conservation was formulated and approved in 2002. The Policy aims at continued economic, social and cultural progress and enhancement of the quality of life of Malaysians through environmentally sound and sustainable development. It is based in eight (8) inter-related and mutually supporting principles set to harmonize economic development goals with environmental imperatives:-

- Stewardship of the Environment
- Conservation of the Nature's Vitality and Diversity
- Continuous Improvement in the Quality of the Environment
- Sustainable Use of Natural Resources
- Integrated Decision-making
- Role of the Private Sector
- Commitment and Accountability
- Active Participation in the International Community

In keeping abreast with the country's rapid economic development and to meet with the nation's aspiration for an improved quality of life, the National Policy on the Environment serves as an important guide to all stakeholders to ensure that the environment is clean, safe, healthy and productive.



viii. Construction Industry Master Plan Malaysia (2006-2015)

On 24 June 2003, the Construction Industry Development Board (CIDB) and the Building Industry President Council (BIPC) jointly organized the Presidents and Chief Executive Officers (CEOs) Roundtable on establishing priorities to improve the Malaysian construction industry for the future. The Roundtable was participated by CEOs of major construction and property development companies, presidents of professional institutes and building industry associations as well as officers from various Government departments. The Roundtable identified and recommended measures to improve the Malaysian construction industry. CIDB was then entrusted with the role of coordinating the various measures recommended and establishing the 10 Working Groups (WGs), which included the CIMP.

The CIMP, Construction Industry Master Plan is Malaysia's strategic move to transform its construction industry to be among the best in the world. Malaysia's construction industry in 2015 aspired to be characterized in the following manner:

- Efficient and productive industry –industry is progressive by employing highly skilled workers equipped with modern techniques and technology, delivering high quality product and services with an outstanding achievement in global construction arena.
- Consolidated industry – One that is customer and service-focused delivering integrated services through strategic partnership between the clients, contractors, consultants, sub-contractors and suppliers.



- Innovative industry – that benefits from structured application of R&D initiatives. The industry continuously seeks to improve itself to meet the demand of sophisticated and highly knowledgeable customers.
- Environmentally responsible industry – industry is committed to environmentally sustainable development.

ix. National Policy on Climate Change (2009)

The National Policy on Climate Change (2009) through the Strategic Thrust for RE and EE champions the energy efficiency through promotion of green buildings in commercial / institutional, industrial and residential sector. This is achievable through application of low or zero energy concept in the design and construction of new buildings; retrofitting of efficient ventilation and cooling systems as well as lighting systems; energy conservation practice in buildings; retrofitting existing buildings to include EE features and generate RE; and development of a green building index.

(http://www.uniten.edu.my/newhome/uploaded/admin/research/centres/iepre/2012/papers/Sustainable_Development_in_the_Building_Sector_Green_Building_Framework_in_Malaysia.pdf).

The government of Malaysia has taken several pro-active actions in promoting energy efficiency through demonstration buildings including the Energy Commission's Diamond Building that could encourage private sector to also construct and design low energy buildings.

(http://www.uniten.edu.my/newhome/uploaded/admin/research/centres/iepre/2012/papers/Sustainable_Development_in_the_Building_Sector_Green_Building_Framework_in_Malaysia.pdf).



x. The Eleventh Malaysia Plan (RMK11), The Economic Transformation Programme (ETP)

The Economic Transformation Programme (ETP) represents a marked change in approach that builds on the Tenth Malaysia Plan (RMK10). The ETP focuses on key growth engines or National Key Economic Areas (NKEAs). It relies heavily on private sector-led growth, describes very specific investments and policy actions and has a clear transparent implementation roadmap with strong performance management.

As the core element in ETP, an NKEA is defined as a driver of economic activity that has the potential to directly and materially contribute a quantifiable amount of economic growth to the Malaysian economy. The 12 NKEA's consist of 11 industry sectors; Oil, Gas and Energy; Financial Services; Wholesale and Retail; Palm Oil; Tourism; Electronics and Electrical; Business Services; Communications Content and Infrastructure; Education; Agriculture; and Healthcare, and a geographical sector; Greater Kuala Lumpur/Klang Valley. The 11 sectors in NKEA's are expected to deliver 74 percent of the Gross National Income (GNI) growth potential over the next decade. Overall, these NKEA sectors are sectors, in which Malaysia has current or potential competitive advantage, representing a mix of service, manufacturing, agriculture and extractive industries.

The ETP will result in Malaysia becoming a high-income nation with GNI per capita of RM48, 000 or USD15, 000 by 2020. As well as achieving its GNI target, by 2020 Malaysia will develop many of the characteristics of a high-income economy: services will account for over 65 percent of Gross Domestic Product (GDP); private consumption will account for almost 60 percent of GDP; and



Malaysia's dependency on oil will be reduced from 21 percent of GDP in 2008 to 14 percent. This initiatives will be a private sector-led transformation with 92 percent of the over RM1.4 trillion of investment required coming from the private sector. Finally, the ETP will raise income levels across Malaysia by creating an additional 3.3 million jobs, over 60 percent of which will be in medium-income or high-income salary brackets.

2.9 Conclusion

The construction market in Malaysia to grow at a CAGR of 8.92% during 2014-2019 forecasted by the industry experts. The construction market in Malaysia is booming as the government is trying to bring it on par with the other emerging and developed countries in terms of infrastructure. Heavy investments are being made in the construction industry. The government has launched an ETP, which is focusing on improving the overall scenario of the entire Malaysian economy.

This is the scenario and the growth prospects of the construction market in Malaysia for 2015-2019 as per reported by Business Wire – Research in Market: Construction Market in Malaysia 2015- 2019.To calculate the market size, the report considers the revenue of the construction market as a part of the GDP. The performance of the market is forecast with the help of the predicted CAGR after analysis of the present condition.

According to the report, Economic Transformation Programme (ETP) was an initiative started by the government of Malaysia in 2010. It focuses on improving the national scenario of the country by developing the infrastructure sector. The ETP has identified 12 NKEAs out of which the oil, gas, and energy, and infrastructure sectors hold a major share. The program has identified these sectors on the basis of their contribution to the national economy and thus, is focusing on improving them. Being an emerging market,



development in the infrastructure sector has a direct impact on national growth. The program has attracted huge investments from national and international investors in the construction sector. Further, the report states that abandonment of construction projects, especially in the housing sector, is one of the main issues in the construction market in Malaysia.

With the development of infrastructure in Malaysia, demand for energy is set to increase. The increasing demand for energy will lead to reduction of resource reserves and increase in greenhouse gas emissions. In order to control the reduction of energy sources and increasing emissions, the government of Malaysia is promoting green building and sustainable development practices in the country. The government has formulated environmental guidelines for building construction, which are to be followed by the developers and contractors. The Malaysia Green Building Confederation (MGBC) is the governing body for sustainable development in the country. Malaysia follows its indigenous green building rating system called the Green Building Index (GBI). Department of Environment also one of the regulatory bodies responsible and appointed by government to administer an environmental act, any regulations and orders. Investors are advised to consult the Department of Environment for further clarification of the requirements. In conclusion, investors should be aware that environmental issues are now a growing concern all over the world. Today, the public demands a better quality of life and environment. Therefore, investors should not only work towards complying with the law but also to fulfil their public obligations.



3. METHODOLOGY

3.1 Introduction

This chapter describes the methodology of the overall Occupational Analysis process that was conducted throughout the Building & Construction Industry Occupational Analysis.

3.2 Research Design

The research design that consists of the research method, data analysis methods and output required is as shown in the table below:

Table 3: Research Design

Objectives	Research Method	Data Analysis	Output
<p>Objective 1: To identify the Occupational Structure and Occupational Area Structure of the Building & Construction industry.</p> <p>Objective 2: To identify critical and non-critical occupations within the employment structure of the Building & Construction industry based on supply and demand data in which to be obtained from secondary database.</p>	<p>Qualitative:</p> <ul style="list-style-type: none">• Literature review• Focus Groups that consist of members representing different areas in the industry	<ul style="list-style-type: none">• Thematic analysis• Mapping of industry job areas	<ul style="list-style-type: none">• Scope of the Industry and its sub-sectors;• Occupational groups of the sub-sector;• Job title;• Critical job title; and• Competency Levels (Level 1 – 8).

Research initially consists of analysing available information on the Building & Construction Industry, followed by direct contact with those in the industry to obtain a



general idea of the industry sub-sectors. A supply and demand analysis is then conducted to identify current and projected supply & demand including supply & demand gap analysis. Qualitative analysis was chose to analyse data obtained from this study.

3.3 Research Methodology

This section describes on the different research methods used throughout the project and in the engagement of participating respondents. Several methods were employed namely focus group discussions and mapping. Below is description of each activity conducted with respondents.

3.3.1 Qualitative

I. Literature review

A literature review on the Building & Construction industry was carried out to get some insight of this industry in the context of the Malaysian scenario. The scope covered under this search includes definitions, the current analysis of the industry sub-sectors/areas and international examples of industry segmentation of its sub-sectors.

II. Focus Groups with industry members

The literature review findings were used as a guide to identify the scope of study and analysis. Experts from the Building & Construction Industry were identified for further communication and contact. The lists of experts are included in the list of development panel members in Annex 2: List of Development Panel Members. However, there were also several references made by expert panels to industry experts that were not in the workshop.

The Focus Groups consisted of industry members, two (2) methods were adopted, namely; brainstorming and Development of Standard & Curriculum (DESCUM) session. The focus group workshop sessions are described in the following table.



Table 4 : Focus Group Session

Date	Location	Activity	Respondents	Organisation	Method Used
3 rd - 4 th June 2015	Ibis Styles Hotel, Cheras	Occupational Structure Development Workshop	15	10	Focus Group Discussion
11 th – 12 th July 2015	Ibis Styles Hotel, Cheras	Occupational Area Structure Development Workshop	13	10	Focus Group Discussion
8 th – 9 th Aug. 2015	Ibis Styles Hotel, Cheras	Occupational Definition Development Workshop	10	10	Focus Group Discussion
22 nd – 23 rd Aug 2015	Ibis Styles Hotel, Cheras	OS, OAS Review Workshop	10	10	Focus Group Discussion
19 th – 20 th Sep. 2015	Ibis Styles Hotel, Cheras	Occupational Definition Development Workshop	10	10	Focus Group Discussion

Facts obtained during the literature review were also discussed and presented to the development panel members. The presence of the key persons or experts ensured that the development of the Occupational Analysis is current and relevant. The Building & Construction Industry was analysed using the above methodology to identify the following:

- (a) Scope of the Industry and its sub-sectors;
- (b) Main areas;
- (c) Occupational groups of the sub-sector;



- (d) Job title;
- (e) Critical job title; and
- (f) Competency levels (Level 1 – 8).

3.4 Data Analysis

In meeting both objectives set forth in this study, the data was analysed through mapping, synthesis of discussion group findings and comparison of benchmarking samples.

3.4.1 Qualitative Analysis: Occupational Structure and Occupational Area Structure Development

Thematic analysis was used in qualitative research and focused on examining themes within data. This method emphasizes organization and rich description of the data set. Thematic analysis goes beyond simply counting phrases or words in a text and moves on to identifying implicit and explicit ideas within the data. Coding is the primary process for developing themes within the raw data by recognizing important moments in the data and encoding it prior to interpretation. The interpretation of these codes can include comparing theme frequencies, identifying theme co-occurrence, and graphically displaying relationships between different themes. Most researchers consider thematic analysis to be a very useful method in capturing the intricacies of meaning within a data set.

The thematic approach was applied throughout the process of analysing the Occupational Structure of the industry.



The Occupational Structure was analysed and defined based on the following processes:

(a) Identification of industry scope and boundaries with other relevant industries

The identification of the industry scope is important so that when identifying the relevant sub-sectors and areas under the industry, it will define the segmentation of the particular industry to other relevant industries. This will eliminate the possibility of duplication between common areas.

(b) Identification of sub-sector/area/sub-area

The coverage of a sub-sector should be able to accommodate a number of areas and sub-areas where applicable. Sub-sectors are identified as being components of an industry and can be clustered in terms of classification, segmentation or process driven.

(c) Identification of job titles

In order to identify job titles, it is important to obtain consensus from expert panel members so that the job title is common between organizations: Small, Medium Enterprise (SME) or Multi-National Corporations and is easily accepted by practitioners in the industry.

(d) Identification of Levelling

Levelling of a job title is done based on the level of competency required as competent at a specific designation. The level descriptors in Annex 1 is used as a reference when determining the different levels relevant to a specific job title.

(e) Occupational Area Analysis

The Occupational Structure can be further analysed to produce its Occupational Area Structure (OAS) through Occupational Area Analysis (OAA). The occupational area analysis is a process of analysing the job scope of a particular area. This will help to ensure that the job titles are described not only based on common use in the industry but also by their job scope. These OAS will be taken into



consideration to be developed into NOSS sub-areas. Therefore the process of merging and shrinking must be done with keeping in mind of the mechanisms of training and certification based on the NOSS. Ultimately, we are able to produce multi-skilling and multi-tasking workers required by the industry in line with the high-income economy policy. Nevertheless, in certain cases, due to the requirement of industry or regulations, merging is not necessarily required.

3.5 Limitations

i. Data and information

Given the broad-base nature of building and construction industry, which are broadly divided into consultancy and construction sides, having list of panellists proficient in both areas, were a challenge. Even with participation of such eminent persons still doesn't steer the discussion clear from biased views and opinions. Those from different standpoints might have different view on the same subject typically influences by their own practice orientation. In other hand, some of the regulatory bodies have not release their new circular which is not only related but crucial reference to the research for the development of the above said industry.

ii. International Benchmarking

International benchmarking was done thoroughly through desktop research. Interpretation on data and information presented in either website or PDF documents lack the detail explanation based on the background story such as culture and economic level origins of related sources to the referred topics. Hence possible skewed understanding of related topics, which could potentially lead to inaccurate inferences of, related benchmarking.



3.6 Conclusion

This chapter has elaborated on the methodology used in the study which is through literature review, focus group discussion sessions, DESCUM (Development of Standard and Curriculum) and focus groups. The development of the Occupational Structure obtained via brainstorming sessions and supply and demand findings will be presented in the next chapter, Chapter 4, Findings.



4. FINDINGS AND DISCUSSION

4.1 Introduction

The identified sub-sectors for the Building & Construction industry were obtained through literature research and discussions with industry experts during the development workshop sessions and interviews. Based on the discussions held during development workshops and approval sessions, the development and approval panel members had identified that the 13 sub-sectors, 6 areas and 65 job areas under the Building & Construction industry in Malaysia as shown in the table on the next page.

Table 5 : Overview of Sub Sectors, Areas and Job Areas

Sector	Sub-sector	Area	Job Area
Building & Construction	1. TOWN & COUNTRY PLANNING	PRE CONSULTANCY	PROJECT ASSESSMENT
			TECHNICAL
	2. BUILDING SURVEY	CONSULTANCY	PROJECT
			TECHNICAL
	3. ARCHITECTURE	CONSULTANCY	PROJECT
			TECHNICAL
		CONSTRUCTION	PROJECT
	4. CIVIL ENGINEERING	CONSULTANCY	PROJECT
			TECHNICAL
		CONSTRUCTION	ROADWORK
			BRIDGE
			WATER RETICULATION & SEWERAGE
			EARTHWORK / RETAINING WALL / GEOTECHNICAL STRUCTURE/ FENCING & GATE
	5. QUANTITY SURVEY	CONSULTANCY	PROJECT
		CONSTRUCTION	TECHNICAL
	6. GEOMATICS & LAND SURVEY	CONSULTANCY	MANAGEMENT
			CADASTRAL/ENGINEERING SURVEY (C/ES)
			UTILITY MAPPING
			PHOTOGRAMMETRY
			HYDROGRAPHY
			REMOTE SENSING
	7. MECHANICAL & ELECTRICAL ENGINEERING	CONSULTANCY	GEOGRAPHIC INFORMATION SYSTEM (GIS)
			PROJECT
		CONSTRUCTION (MECHANICAL ENGINEERING)	TECHNICAL
			HVAC
			PLUMBING
		CONSTRUCTION (ELECTRICAL ENGINEERING)	INFRASTRUCTURE
			FIRE PROTECTION



Sector	Sub-sector	Area	Job Area
	8. LANDSCAPE ARCHITECTURE	CONSULTANCY	PROJECT
			TECHNICAL
	9. SAFETY, HEALTH & ENVIRONMENT	CONSULTANCY	PROJECT
			TECHNICAL
		CONSTRUCTION	SAFETY & HEALTH
			TRAFFIC
			ENVIRONMENT
	10. INDUSTRIALIZED BUILDING SYSTEM (IBS)	MANUFACTURING	PRECAST
			BLOCK
			TRUSSES – STEEL & TIMBER
			FRAMING – STEEL & TIMBER
			FORMWORK
		INSTALLATION	PRECAST
			BLOCK
			TRUSSES – STEEL & TIMBER
			FRAME – STEEL & TIMBER
			FORMWORK
	11. CONSTRUCTION MACHINERY PLANT & OPERATIONS	CONSTRUCTION	CRANE
			EARTHWORK
			BUILDING MACHINERY
			ROAD CONSTRUCTION
			PROJECT
			TRANSPORT
			WORKSHOP
	12. BUILDING MATERIALS	READY MIXED CONCRETE (RMC) PLANT (OPERATION)	PRODUCTION PLANT
			QUALITY CONTROL (QC)
	13. FACILITY MAINTENANCE	POST CONSTRUCTION	MECHANICAL
			ELECTRICAL
			AUTOMATION
			PIPING
			CIVIL



Table 6 : Table Separation of Sub Sectors, Area and Job Areas

SECTOR : BUILDING AND CONSTRUCTION

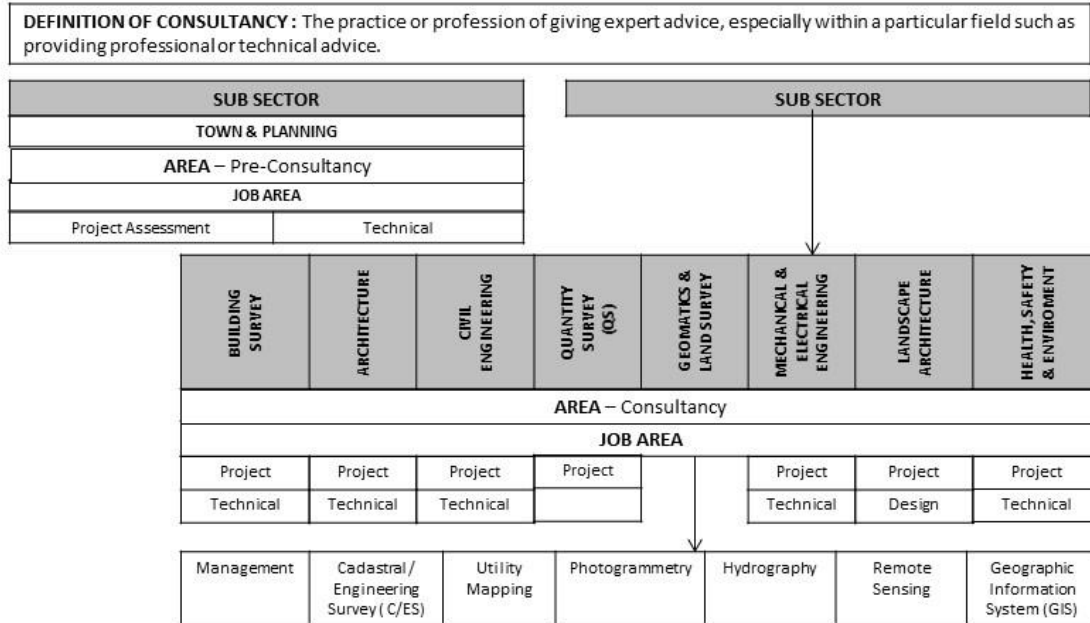


Table 2.1 Table Segregation of Sub Sectors, Areas And Job Areas for easier review



Table 7 : Table Segregation of Sub Sectors, Area and Job Areas

SECTOR : BUILDING AND CONSTRUCTION									
SUB SECTOR									
Architecture	Civil Engineering	Quantity Survey	Mechanical Engineering	Electrical Engineering	Safety, Health & Environment	Construction Machinery Plant & Operation	Building Materials		
AREA - CONSTRUCTION							OPERATION - READY MIXED CONCRETE PLANT		
JOB AREA									
Project	Roadwork	Technical	HVAC		Safety & Health		Cranes	Production Plant	Quality Control
	Bridge		Plumbing	Plumbing	Traffic		Earthwork		
	Water Reticulation & Sewerage		Infrastructure	Infrastructure	Environment		Building Machinery		
	Earthwork / Retaining Wall/Geotechnical		Fire Protection	Fire Protection			Road Construction		
	Structure/Fencing & Gate						Project		
							Transport		
							Workshop		

Table 2.2 Table Segregation of Sub Sectors, Areas And Job Areas for easier review



Table 8 : Table Segregation of Sub Sectors, Areas and Job Areas

SECTOR : BUILDING AND CONSTRUCTION		
SUB SECTOR		
INDUSTRIALIZED BUILDING SYSTEM (IBS)		FACILITY MANAGEMENT
MANUFACTURING	INSTALLATION	POST CONSTRUCTION
DEFINITION : A productive industry using mechanical power and machinery	DEFINITION : a work of art that usually consists of multiple components often in mixed media and that is exhibited in a usually large space in an arrangement specified by the experts.	DEFINITION : Any services necessary to allow the owner to use and/or occupy the facility.
Job Area		
Precast	Precast	Mechanical
Block	Block	Electrical
Trusses – Steel & Timber	Trusses – Steel & Timber	Automation
Framing – Steel & Timber	Framing – Steel & Timber	Piping
Formwork	Formwork	Civil

Table 2.3 Table Segregation of Sub Sectors, Areas And Job Areas for easier review

4.2 Building & Construction Sector Overview

Based on the agreement among the industry panellists, it was concluded that the Building & Construction industry could be classified into 13 sectors. Below is brief description of individual sub-sector based on the literature review:

- I. Town & Country Planning - Town and country planning is the construction industry's strategic cousin. It deals with issues and ideas that shape the development and conservation of the environment. This sub-sector is at the front end of decisions that shape some major issues such as how to deal with climate change, where and how jobs might be created, how to regenerate places, where people might live, and how to travel. Town and country planners



help communities make big decisions about where development might occur, but also which types of environment might be protected and why.

- II. Building Survey - Building survey provides professional advice on property and construction, which spans across residential, commercial, industrial, leisure and agriculture projects.
- III. Architecture – This sub-sector professionals become involved early in the construction of a building; whether that be for a residential home or commercial building because they have to supply architectural drawings, the design or plans, so the building can be accurately 'costed' by a builder. Once the developer or new home builder's client is happy to proceed, the architect may submit the final plans to council for building approval so construction of the new home or commercial building can commence.
- IV. Civil & Engineering - The sub-sector is a key component in the construction process. Part of its wider discipline, civil & structural engineering is concerned with the design and physical integrity of buildings and other large structures, like tunnels and bridges. Unlike architecture, which must focus on the appearance, shape, size and use of the building, civil & structural engineering must solve technical problems - and help the architect achieve his or her vision for the project.
- V. Quantity Survey - The quantity survey discipline is responsible for figuring out just what a construction project is going to cost. It has other roles too, especially making sure that construction costs and production are managed as efficiently as possible.



- VI. Geomatics & Land Survey - Geomatics & Land surveying is the measurement and mapping process of our surrounding environment using mathematics, specialized technology and equipment. Surveyors measure just about anything on the land, in the sky or on the ocean bed.
- VII. Mechanical & Electrical Engineering - The Mechanical Engineer – Construction manages the planning, design, construction and maintenance of various mechanical systems in buildings and structures; ensures compliance with relevant building codes and safety regulations. While Electrical Engineers design, develop and maintain electrical control systems and/or components to required specifications, focusing on economy, safety, reliability, quality and sustainability.
- VIII. Landscape Architecture - Landscape architects create the landscape around us. They plan, design and manage open spaces including both natural and built environments. They work to provide innovative and aesthetically pleasing environments for people to enjoy, while ensuring that changes to the natural environment are appropriate, sensitive and sustainable.
- IX. Health, Safety & Environment - They set out what people involved in construction work need to do to protect themselves from harm and anyone the work affects.
- X. Industrialized Building System - Industrialized Building System (IBS) is the term coined by the industry and government in Malaysia to represent the adoption of construction industrialization and the use of prefabrication of components in building construction. IBS in Malaysia has begun in early 1960's when the government started first project on IBS aims to speed up the delivery time and built affordable and quality houses.



- XI. Construction Machinery Plant & Operation - Heavy equipment refers to heavy-duty vehicles, specially designed for executing construction tasks, most frequently ones involving earthwork operations. They are also known as heavy machines, heavy trucks, construction equipment, engineering equipment, heavy vehicles, or heavy hydraulics. 'Plant' is a general name for machinery, equipment, appliance, implement or tool and any component or fitting or accessory of these. It can include things as diverse as presses in a foundry, underground drill jumbos in mining and photocopiers in an office. Operation is an activity of workload or project that most of the time facing challenges such as lack of timely reliable data on which to base decisions and analyse problems, lack of cohesion and visibility across plant processes, inconsistent work processes, and inability to anticipate and avoid incidents and difficulty in maintaining alignment between production and customer orders. The personnel expertise overcomes these challenges by providing a consistent, organized and integrated approach to performance management, quality control, material movement, equipment maintenance and reliability, as well as, process safety management and environmental compliance.
- XII. Building Materials - The construction industry consumes more natural resources than any other industry. With increasing public awareness of the needs and demands of sustainable development and environmental conservation, no other industry is called on as much as the country's construction and building industry to evolve their practices to satisfy the needs of our current generation, without curtailing the resources of future generations to meet theirs. For example, concrete is by far the most important building material, with billions of tons produced each year worldwide, and without which the nation's infrastructure is unthinkable. Considerable progress and breakthroughs have been made in



recent years in concrete technology, which have largely gone unnoticed by the public at large.

- XIII. Facility Maintenance - Facilities maintenance is the integration of processes within an organization to maintain and develop the agreed services which support and improve the effectiveness of its primary activities. A profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology.



4.3 Building & Construction Occupational Structure (OS)

Table 9 : Occupational Structure (OS) for Town & Country Planning

SECTOR	BUILDING & CONSTRUCTION	
SUB SECTOR	TOWN & COUNTRY PLANNING	
AREA	PRE CONSULTANCY	
JOB AREA	PROJECT ASSESSMENT	TECHNICAL
LEVEL 8	No Level	No Level
LEVEL 7	No Level	No Level
LEVEL 6	No Level	No Level
LEVEL 5	Town Planning Manager	
LEVEL 4	Project Assistant Manager	
LEVEL 3	Project Supervisor	Town Planning Draughtsman
LEVEL 2	Technical Administration Assistant	
LEVEL 1	No Level	

Table 10 : Occupational Structure (OS) for Building Survey

SECTOR	BUILDING & CONSTRUCTION	
SUB SECTOR	BUILDING SURVEY	
AREA	CONSULTANCY	
JOB AREA	PROJECT	TECHNICAL
LEVEL 8	No Level	
LEVEL 7	No Level	
LEVEL 6	No Level	
LEVEL 5	Building Surveyor***	
LEVEL 4	Assistant Building Surveyor***	
LEVEL 3	Technician (Building Surveyor)***	
LEVEL 2	Technical Clerk	
LEVEL 1	No Level	



Table 11 : Occupational Structure (OS) for Architecture

SECTOR	BUILDING & CONSTRUCTION	
SUB SECTOR	ARCHITECTURE	
AREA	CONSULTANCY	
JOB AREA	PROJECT	TECHNICAL
LEVEL 8	No Level	No Level
LEVEL 7	No Level	No Level
LEVEL 6	No Level	No Level
LEVEL 5	Architecture Manager	
LEVEL 4	Architect Designer**	
LEVEL 3	Clerk of Work	Senior Architectural Draughtsman**
LEVEL 2	No Level	Architectural Draughtsman
LEVEL 1	No Level	

Table 12 : Occupational Structure (OS) for Civil & Structure

SECTOR	BUILDING & CONSTRUCTION	
SUB SECTOR	CIVIL AND STRUCTURE (C & S)	
AREA	CONSULTANCY	
JOB AREA	PROJECT	TECHNICAL
LEVEL 8		
LEVEL 7		
LEVEL 6		
LEVEL 5	C & S Resident Engineer***	C & S Principal Engineer Designer***
LEVEL 4	C & S Assistant Resident Engineer**	C & S Assistant Engineer**
LEVEL 3	Clark of Works	C & S Senior Draughtsman**
LEVEL 2	No Level	C & S Draughtsman
LEVEL 1	No Level	No Level



Table 13 : Occupational Structure (OS) for Quantity Survey

SECTOR	BUILDING & CONSTRUCTION
SUB SECTOR	QUANTITY SURVEY (QS)
AREA	CONSULTANCY
JOB AREA	PROJECT
LEVEL 8	No Level
LEVEL 7	No Level
LEVEL 6	No Level
LEVEL 5	QS Contract Manager
LEVEL 4	QS Contract Executive
LEVEL 3	QS Clerk of Work
LEVEL 2	No Level
LEVEL 1	No Level



Table 14 : Occupational Structure (OS) for Geomatics & Land Survey

SECTOR	BUILDING & CONSTRUCTION						
SUB SECTOR	GEOMATICS & LAND SURVEY						
AREA	CONSULTANCY						
JOB AREA	MANAGEMENT	CADASTRAL / ENGINEERING SURVEY (C/ES)	UTILITY MAPPING	PHOTOGRAMMETRY	HYDROGRAPH Y	REMOTE SENSING	GEOGRAPHIC INFORMATION SYSTEM (GIS)
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 5	Project Manager**	Land Surveyor	Utility Surveyor***	Photogrammetrist** *	Hydrographic Surveyor***	Remote Sensing Engineer**	GIS Engineer**
LEVEL 4	Assistant Project Manager	Assistant Land Surveyor	Assistant Utility Surveyor**	Assistant Photogrammetrist**	Junior Hydrographic Surveyor*	Remote Sensing Assistant Engineer*	GIS Assistant Engineer*
LEVEL 3	Administration Assistant	Land Survey Technician	Utility Survey Technician	Photogrammetry Technician*	Hydrographic Survey Technician	Remote Sensing Technician	GIS Technician
LEVEL 2	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level	No Level



Table 15 : Occupational Structure (OS) for Mechanical & Electrical Engineering

SECTOR	BUILDING & CONSTRUCTION	
SUB SECTOR	MECHANICAL & ELECTRICAL ENGINEERING	
AREA	CONSULTANCY	
JOB AREA	PROJECT	TECHNICAL
LEVEL 8	No Level	No Level
LEVEL 7	No Level	No Level
LEVEL 6	No Level	No Level
LEVEL 5	Resident Engineer	Senior Engineer
LEVEL 4	M & E Engineer	Design Engineer
LEVEL 3	M & E Clerk of Work / Supervisor	M & E Draughtsman / Technical CAD
LEVEL 2	M & E Technician	No Level
LEVEL 1	No Level	No Level

Table 16 : Occupational Structure (OS) for Landscape Architecture

SECTOR	BUILDING & CONSTRUCTION	
SUB SECTOR	LANDSCAPE ARCHITECTURE	
AREA	CONSULTANCY	
JOB AREA	PROJECT	DESIGN
LEVEL 8	No Level	No Level
LEVEL 7	No Level	No Level
LEVEL 6	No Level	No Level
LEVEL 5	Resident Landscape Architect	Principal Landscape Architect
LEVEL 4	Assistant Landscape Architect	Landscape Designer
LEVEL 3	Clerk of Work	Draughtsman/Technical ACAD
LEVEL 2	Technician	No Level
LEVEL 1	No Level	No Level



Table 17 : Occupational Structure (OS) for Health, Safety & Environment

SECTOR	BUILDING & CONSTRUCTION	
SUB SECTOR	HEALTH, SAFETY & ENVIRONMENT	
AREA	CONSULTANCY	
JOB AREA	PROJECT	TECHNICAL
LEVEL 8	No Level	No Level
LEVEL 7	No Level	No Level
LEVEL 6	No Level	No Level
LEVEL 5	Safety Manager**	No Level
LEVEL 4	Safety Officer*** / Environmental Officer (EO)***	Traffic Management Officer (TMO)*
LEVEL 3	Site Safety Supervisor	TMO Assistant / EO Assistant
LEVEL 2	Site Safety Promoter	Traffic Worker
LEVEL 1	No Level	No Level

Figure 2.9: Occupational Structure (OS) for Health, Safety & Environment



Table 18 : Occupational Structure (OS) for Industrialized Building System (IBS) Manufacturing

SECTOR	BUILDING & CONSTRUCTION							
SUB-SECTOR	INDUSTRIALIZED BUILDING SYSTEM (IBS)							
AREA	MANUFACTURING							
JOB AREA	PRECAST	BLOCK	TRUSSES		FRAMING		FORMWORK	INNOVATION
			STEEL	TIMBER	STEEL	TIMBER		
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 5	IBS Production Manager ***							
LEVEL 4	IBS Design Coordinator***							
LEVEL 3	Precast Manufacturing Supervisor **	Block Wall Supervisor **	Steel (Trusses) Supervisor **	Timber (Trusses) Supervisor **	Steel (Framing) Supervisor **	Timber (Framing) Supervisor **	Formwork Supervisor **	IBS Innovation Supervisor **
LEVEL 2	Precast Manufacturing Line Technician **	Block Wall Line Technician **	Steel (Trusses) Line Technician **	Timber (Trusses) Line Technician **	Steel (Framing) Line Technician **	Timber (Framing) Line Technician **	Formwork Line Technician **	IBS Innovation Line Technician **
LEVEL 1	Precast Manufacturing Operator	Block Wall Operator	Steel (Trusses) Operator	Timber (Trusses) Operator	Steel (Framing) Operator	Timber (Framing) Operator	Formwork Operator	IBS Innovation Operator



Table 19 : Occupational Structure (OS) for Industrialized Building System (IBS) Installation

SECTOR	BUILDING & CONSTRUCTION							
SUB-SECTOR	INDUSTRIALIZED BUILDING SYSTEM (IBS)							
AREA	INSTALLATION							
JOB AREA	PRECAST	BLOCK	TRUSSES		FRAMING		FORMWORK	INNOVATION
			STEEL	TIMBER	STEEL	TIMBER		
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 5	IBS Installation Manager ***							
LEVEL 4	IBS Installation Specialist ***							
LEVEL 3	IBS Precast Installation Supervisor ***	IBS Block Installation Supervisor ***	IBS Steel (Trusses) Installation Supervisor ***	IBS Timber (Trusses) Installation Supervisor ***	IBS Steel (Framing) Installation Supervisor ***	IBS Timber (Framing) Installation Supervisor ***	IBS Formwork Installation Supervisor ***	IBS Innovation Installation Supervisor ***
LEVEL 2	IBS Precast Installer ***	IBS Block Installer ***	IBS Steel (Trusses) Installer ***	IBS Timber (Trusses) Installer ***	IBS Steel (Framing) Installer ***	IBS Timber (Framing) Installer ***	IBS Formwork Installer ***	IBS Innovation Installer ***
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level



Table 20 : Occupational Structure (OS) for Construction Machinery Operators (Part 1 of 3)

SECTOR	BUILDING & CONSTRUCTION										
SUB SECTOR	CONSTRUCTION MACHINERY PLANT & OPERATION										
AREA	CONSTRUCTION										
JOB AREA	CRANES				EARTHWORK						
	Rigging	Tower Crane	Crawler Crane	Mobile Crane	Bulldozer	Wheel Loader	Excavator	Dump Truck	Backhoe Loader	Back Pusher	Paver Compactor
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	Plant Director***										
LEVEL 5	Plant Manager***										
LEVEL 4	Rigger Manager	Assistant Plant Manager***									
LEVEL 3	Rigger Supervisor	Plant Executive/ Plant Coordinator***									
LEVEL 2	Crane Rigger***	Tower Crane Operator**	Crawler Crane Operator**	Mobile Crane Operator**	Bulldozer Operator**	Wheel Loader Operator**	Excavator Operator**	Dump Truck Operator**	Backhoe Loader Operator**	Back Pusher Operator**	Paver Compactor Operator**
LEVEL 1	Assistant Rigger***	Tower Crane Signalman**	Crawler Crane Signalman**	Mobile Crane Signalman**	No Level	No Level	No Level	No Level	No Level	No Level	No Level



Table 21 : Occupational Structure (OS) for Construction Machinery Operators (Part 2 of 3)

SECTOR	BUILDING & CONSTRUCTION												
SUB SECTOR	CONSTRUCTION MACHINERY PLANT & OPERATIONS												
AREA	CONSTRUCTION												
JOB AREA	BUILDING MACHINERY							ROAD CONSTRUCTION					
	Placing Boom	Concrete Pump	Passenger Hoist	Generator Set	Air Compressor	Bar Bender/Cutter	Gondola	Asphalts Paver	Tandem Roller	Tire Roller	Vibration Roller	Milling Machine	Skid Steer Loader
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	Plant Director***												
LEVEL 5	Plant Manager***												
LEVEL 4	Assistant Plant Manager***												
LEVEL 3	Plant Executive / Plant Coordinator***												
LEVEL 2	Placing Boom Operator**	Concrete Pump Operator**	Passenger Hoisting Operator**	Generator Set Technician**	Air Compressor Operator**	Bar Bender/Cutter Operator**	Gondola Operator**	Asphalts Paver Operator**	Tandem Roller Operator**	Tyre Roller Operator**	Vibration Roller Operator**	Milling Machine Operator**	Skid Steer Loader Operator**
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level	No Level	Asphalts Paver Chainman**	No Level	No Level	No Level	No Level	No Level



Table 22 : Occupational Structure (OS) for Construction Machinery Operations (Part 3 of 3)

SECTOR	BUILDING & CONSTRUCTION												
SUB SECTOR	CONSTRUCTION MACHINERY PLANT & OPERATIONS												
AREA	CONSTRUCTION												
JOB AREA	PROJECT								TRANSPORT				WORKSHOP
	Straddle Carrier	Segmental Launcher	Piling	Boring Machine	Tunneling Machine	PVD Machine	Pipe Layer Machine	Micro Machine	Low Loader	Lorry Cargo	Lorry Crane	Sky lift	Workshop
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	Plant Director***												
LEVEL 5	Plant Manager***												Workshop Manager***
LEVEL 4	Assistant Plant Manager***												Assistant Workshop Manager***
LEVEL 3	Plant Executive / Plant Coordinator***												Construction Workshop Foreman***
LEVEL 2	Straddle Carrier Operator**	Segmental Launcher Operator**	Piling Operator**	Boring Machine Operator**	Tunneling Machine Operator**	PVD Machine Operator**	Pipe Layer Machine Operator**	Micro Machine Operator**	Low Loader Operator**	Lorry Cargo Operator**	Lorry Crane Operator**	Sky Lift Operator**	Construction Workshop Mechanic**
LEVEL 1	No Level	Segmental Launcher Signalman**	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level



Table 23 : Occupational Structure (OS) for Building Materials

SECTOR	BUILDING AND CONSTRUCTION	
SUB SECTOR	BUILDING MATERIALS	
AREA	READY MIXED CONCRETE (RMC) PLANT	
	OPERATIONS	
JOB AREA	Production Plant	Quality Control (QC)
LEVEL 8	NO LEVEL	NO LEVEL
LEVEL 7	NO LEVEL	NO LEVEL
LEVEL 6	NO LEVEL	NO LEVEL
LEVEL 5	RMC Plant Manager	RMC QC Manager
LEVEL 4	RMC Plant Executive	RMC QC Executive
LEVEL 3	RMC Plant Supervisor	RMC QC Supervisor
LEVEL 2	RMC Plant Operator / Batchers	RMC QC Technician
LEVEL 1	RMC Plant Apprentice	RMC Field Technician



Table 24 : Occupational Structure (OS) for Civil & Structure for Construction (Part 1 of 5)

SECTOR	BUILDING & CONSTRUCTION							
SUB SECTOR	CIVIL & STRUCTURE							
AREA	CONSTRUCTION							
JOB AREA	ROADWORK							
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 5	Roadwork Project Manager							
LEVEL 4	Roadwork Civil Engineer							
LEVEL 3	Roadwork Supervisor							
LEVEL 2	Milling / Pavement Layer	Recycle / Cold in Place Recycle (CIPR) Operator	Road Furniture Installer	Roadwork Geotechnical Assistant Technician ***	Concreter	Bar bender	Earth moving plant operator (EMPO)**	Carpenter
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level



Table 25 : Occupational Structure (OS) for Civil & Structure for Construction (Part 2 of 5)

SECTOR	BUILDING & CONSTRUCTION						
SUB SECTOR	CIVIL & STRUCTURE						
AREA	CONSTRUCTION						
JOB AREA	BRIDGE						
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 5	Bridge Construction Project Manager***						
LEVEL 4	Bridge Construction Civil Engineer**						
LEVEL 3	Bridge Construction Supervisor / Foreman						
LEVEL 2	Bridge Geotechnical Assistant Technician ***	Earthwork Operator	Bridge Steel Worker	Earth moving plant operator (EMPO)***	Bar bender	Carpenter	Bridge Furniture Installer
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level	No Level



Table 26 : Occupational Structure (OS) for Civil & Structure for Construction (Part 3 of 5)

SECTOR	BUILDING & CONSTRUCTION							
SUB SECTOR	CIVIL & STRUCTURE							
AREA	CONSTRUCTION							
JOB AREA	WATER RETICULATION & SEWERAGE							
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 5	Project Manager***							
LEVEL 4	Civil Engineer**							
LEVEL 3	Supervisor							
LEVEL 2	Pipe layer	Water Reticulation Fitter	Machine Operator	Authorized Gas Tester (Sewerage) **	Welder	CCTV Operator (Sewerage)	Concreter	Bar bender
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level



Table 27 : Occupational Structure (OS) for Civil & Structure for Construction (Part 3 of 5)

SECTOR	BUILDING & CONSTRUCTION						
SUB SECTOR	CIVIL & STRUCTURE						
AREA	CONSTRUCTION						
JOB AREA	WATER RETICULATION & SEWERAGE						
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 5	Project Manager						
LEVEL 4	Civil Engineer						
LEVEL 3	Supervisor						
LEVEL 2	Bricklayer	Carpenter	Plasterer	Geotechnical ***	Steel Worker	Instrumentation / Secada / Telemetry Installer***	Painter
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level	No Level



Table 28 : Occupational Structure (OS) for Civil & Structure for Construction (Part 4 of 5)

SECTOR	BUILDING & CONSTRUCTION					
SUB SECTOR	CIVIL & STRUCTURE					
AREA	CONSTRUCTION					
JOB AREA	EARTHWORK / RETAINING WALL / GEOTECHNICAL					
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 5	Project Manager***					
LEVEL 4	Civil Engineer***					
LEVEL 3	Supervisor					
LEVEL 2	Bar bender	Carpenter	Concreter	Blasting Specialist**	Soil Improvement Installer**	Welder*
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level



Table 29 : Occupational Structure (OS) for Civil & Structure for Construction (Part 5 of 5)

SECTOR	BUILDING & CONSTRUCTION								
SUB SECTOR	CIVIL & STRUCTURE								
AREA	CONSTRUCTION								
JOB AREA	STRUCTURE, FENCING & GATE								
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 5	Project Manager								
LEVEL 4	Civil Engineer								
LEVEL 3	Supervisor								
LEVEL 2	Bar bender	Carpenter	Concreter	Bricklayer	Welder **	Plasterer	Fence & Gate Installer **	Steel Worker **	Painter
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level



Table 30 : Occupational Structure (OS) for Quantity Survey for Construction

SECTOR	BUILDING & CONSTRUCTION
SUB SECTOR	QUANTITY SURVEY (QS)
AREA	CONSTRUCTION
JOB AREA	TECHNICAL
LEVEL 8	No Level
LEVEL 7	No Level
LEVEL 6	No Level
LEVEL 5	QS Contract Manager
LEVEL 4	QS Contract Executive
LEVEL 3	QS Assistant Technician
LEVEL 2	No Level
LEVEL 1	No Level



Table 31 : Occupational Structure (OS) for Architecture Construction (Part 1 of 2)

SECTOR	BUILDING & CONSTRUCTION										
SUB SECTOR	ARCHITECTURE										
AREA	CONSTRUCTION										
JOB AREA	PROJECT										
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 5	Project Manager / Construction Manager***										
LEVEL 4	Assistant Project Manager**										
LEVEL 3	Supervisor / Draughtsman										
LEVEL 2	Painter	Plasterer	Bricklayer	Ceiling Installer	Partition Installer	Carpet Installer	Cladding Installer**	Iron Monger Installer	Door Installer	Window Installer	Aluminium & Glazing Installer*
LEVEL 1	No Level										



Table 32 : Occupational Structure (OS) for Architecture Construction (Part 2 of 2)

SECTOR	BUILDING & CONSTRUCTION							
SUB SECTOR	ARCHITECTURE							
AREA	CONSTRUCTION							
JOB AREA	PROJECT							
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 5	Project Manager / Construction Manager***							
LEVEL 4	Assistant Project Manager**							
LEVEL 3	Supervisor / Draughtsman							
LEVEL 2	Roofer	Louvre Installer**	Gutter & Rainwater Downpipe Installer	Built-in Cabinet	Staircase Installer	Water- proofing Applicator	Pest Controller	Interior Decorator**
LEVEL 1	No Level							



Table 33 : Occupational Structure (OS) for Mechanical Engineering

SECTOR	BUILDING & CONSTRUCTION			
SUB SECTOR	MECHANICAL & ELECTRICAL ENGINEERING (MECHANICAL)			
AREA	CONSTRUCTION			
JOB AREA	HVAC	PLUMBING	INFRASTRUCTURE	FIRE PROTECTION
LEVEL 8	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level
LEVEL 5	Mechanical Manager***			
LEVEL 4	Mechanical Engineer***			
LEVEL 3	Mechanical Supervisor**			
LEVEL 2	Mechanical Technician*			
LEVEL 1	NO LEVEL			

Table 34 : Occupational Structure (OS) for Electrical Engineering

SECTOR	BUILDING & CONSTRUCTION			
SUB SECTOR	MECHANICAL & ELECTRICAL ENGINEERING (ELECTRICAL)			
AREA	CONSTRUCTION			
JOB AREA	HVAC	PLUMBING	INFRASTRUCTURE	FIRE PROTECTION
LEVEL 8	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level
LEVEL 5	Electrical Engineering Manager**			
LEVEL 4	Electrical Engineer**			
LEVEL 3	Electrical Supervisor**			
LEVEL 2	Electrical Technician*			
LEVEL 1	NO LEVEL			



Table 35 : Occupational Structure (OS) for Safety, Health & Environment

SECTOR	BUILDING & CONSTRUCTION		
SUB SECTOR	SAFETY, HEALTH & ENVIRONMENT		
AREA	CONSTRUCTION		
JOB AREA	SAFETY & HEALTH	TRAFFIC	ENVIRONMENT
LEVEL 8	No Level	No Level	No Level
LEVEL 7	No Level		No Level
LEVEL 6	No Level		No Level
LEVEL 5	Safety Manager**		
LEVEL 4	Safety Officer / Environment Officer***	Traffic Management Officer (TMO)**	Environmental Officer (EO)***
LEVEL 3	Site Safety & Health Supervisor*	TMO Assistant *	EO Assistant*
LEVEL 2	Site Safety Promoter	Traffic Worker	EO Worker
LEVEL 1	No Level	Traffic Signalman	No Level

Table 36 : Occupational Structure (OS) for Facility Maintenance

SECTOR	BUILDING & CONSTRUCTION				
SUB SECTOR	FACILITY MAINTENANCE				
AREA	POST CONSTRUCTION				
JOB AREA	MECHANICAL	AUTOMATION	ELECTRICAL	PIPING	CIVIL
LEVEL 8	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level
LEVEL 5	Facility Maintenance Manager***				
LEVEL 4	Facility Maintenance Executive *				
LEVEL 3	Facility Maintenance Supervisor *				
LEVEL 2	Senior Mechanical Facility Technician	Senior Automation Facility Maintenance Serviceman	Senior Electrical Facility Serviceman	Pipefitter Technician	Civil Technician
LEVEL 1	Serviceman	Serviceman	Serviceman	Assistant Pipefitter	Assistant Technician



4.4 Occupational Definition (OD)

This chapter will focus on the explanation of the Job Description for Building & Construction sector. A job description summarizes the duties of a position and states the essential responsibilities of the job. A company relies on a job description to relay this information regarding a work role to potential candidates to encourage qualified applicants to apply and discourage the application of unqualified individuals. The job description also serves to structure job interviews by focusing attention on the work requirements and applicant credentials that are most important to success in the position to be filled. The job description also establishes expectations for potential employees of the criteria that will be used to evaluate future on-the-job performance.

A job description consists of several elements, one of which is the position title that describes the nature of the work performed. The purpose of a job and the key functions to be performed also are summarized in the job description. Action verbs describe the duties, which the description lists in order of importance. In addition, the description states the knowledge or skills needed to perform the essential responsibilities of the role. The description also identifies the working conditions and physical demands of the job.

Findings in this chapter were obtained via literature review, observation, interviews with industry practitioners and discussions during workshops with development panel members. The findings of the Job Description are also discussed with panel members to obtain insight and to ensure on the matters at hand from a practitioner's perspective.



SECTOR: BUILDING & CONSTRUCTION

SUB-SECTOR 1/13: TOWN & COUNTRY PLANNING





**BUILDING AND CONSTRUCTION
TOWN AND COUNTRY PLANNING
(PRE CONSULTANCY)
LEVEL 2
TECHNICAL ADMINISTRATION ASSISTANT**

Job Definition:

Technical Administration Assistant is the person who is responsible to provide administrative assistance in a given project, to ensure the most effective and efficient conduct of departmental responsibilities such as document preparation for local authority's submission. This can include work on designs for town and city building developments, new road layouts or environmental policies and other related document required by the regulation.

Job Description:

1. Perform documentation for local authority's submission;
2. Perform data collection for project planning schedule and cost estimation;
3. Perform project administrative work;
4. Record and update data filing system; and
5. Ensure all activities conform to Standard Operating Procedure.





BUILDING AND CONSTRUCTION
TOWN AND COUNTRY PLANNING
(CONSULTANCY)
LEVEL 3
PROJECT SUPERVISOR

Job Definition:

Project Supervisor is the person is responsible for the supervisory activities in town and country projects; this would include site survey, project risk assessments and market study proposals. This person may work on designs for town and city building developments, new road layouts or environmental policies; and often need to liaise with local authorities. He / She could work for a local authority, independent planning consultancy, government department, real estate companies or house builders.

Job Description:

1. Perform site survey to confirm site information;
2. Produce site boundaries plan to confirm project boundaries;
3. Perform project risk assessment for accessibility and feasibility;
4. Propose market study for project feasibility;
5. Plan and distribute duties to subordinates; and
6. Verify and record filing system in accordance to Standard Operating Procedure.





**BUILDING AND CONSTRUCTION
TOWN AND COUNTRY PLANNING
(CONSULTANCY)
LEVEL 3
TOWN PLANNING DRAUGHTSMAN**

Job Definition:

Town Planning Draughtsman is the person who is responsible to assist Town & Country Planning division. He/she is required to carry out detailed drafting work including translating conceptual designs into detailed drawings, flow diagrams and schematics and to make field visits as requested to take measurement. This person may work on designs for town and city building developments, new road layouts or environmental policies.

Job Description:

1. Interpret data gathered from Project Assessment division;
2. Review rough sketches, drawings, specifications, and other data received from Project Supervisor to ensure it conform to design concepts;
3. Carry out field visits as requested to take measurements;
4. Select scales for drawing and make any changes and carry out complete design drawing
5. Prepare working drawing showing site boundaries, existing utilities, assess road and surrounding adjacent;
6. Confirm and produce boundaries layout and provide adjustments as necessary;
7. Assist in day-to-day department operations when necessary; and
8. Verify and record filing system in accordance to Standard Operating Procedure.





BUILDING AND CONSTRUCTION
TOWN AND COUNTRY PLANNING
(CONSULTANCY)
LEVEL 4
PROJECT ASSISTANT MANAGER

Job Definition:

Project Assistant Manager is a person who is responsible to prepare and submit planning applications, proposal of potential project development, administration and project budget. This person may work on designs for town and city building developments, new road layouts or environmental policies; and often general research focussing on the technical aspects of a given project. He / She could work for a local authority, independent planning consultancy, government department, real estate companies or house builders.

Job Description:

1. Prepare and submit of project planning applications;
2. Propose on potential development opportunities through site appraisals and development feasibility;
3. Prepare administration and project budget proposals;
4. Performs other related duties such as contributing to general research related to the effectiveness of environmental assessment procedures as per directed by Town Planning Manager;
5. Supervise activities to check and record the project process condition; and
6. Update technical document records.



**BUILDING AND CONSTRUCTION
TOWN AND COUNTRY PLANNING
(CONSULTANCY)
LEVEL 5
TOWN PLANNING MANAGER**

Job Definition:

Town Planning Manager is the person who is responsible to primarily administer managerial activities pertaining to his division. His / Her duties includes on approve and review documents, proposal of potential project development, administration and project budget.

Job Description:

1. Approve documents for planning applications;
2. Verify proposal on potential development opportunities through site appraisals and development feasibility;
3. Review administration and project budget;
4. Administer other related duties such as contributing to general research related to the effectiveness of environmental assessment procedures as per directed by Town Planning Manager;
5. Administer activities to check and record the project process condition;
6. Monitor implementation of Standard Operating Procedure; and
7. Ensure technical document record is up to date.



SECTOR: BUILDING & CONSTRUCTION

SUB-SECTOR 2/13: BUILDING SURVEY





BUILDING AND CONSTRUCTION

BUILDING SURVEY

(CONSULTANCY)

LEVEL 2

TECHNICAL CLERK

Job Definition:

Technical Clerk is a person who is responsible to provide both technical support and administrative services in building surveying. This includes arrangement of meetings, documentation system, and customer service satisfaction.

Job Description:

1. Schedule and organize technical meetings with customers to resolve technical issues under general supervision;
2. Record, place and track orders for products and/or services as required;
3. Perform a variety of clerical support to the technical department;
4. Provide assistance with basic tasks where requested and perform other related technical support duties such as tests, inspect and resolve issue on equipment, electronic items and machinery;
5. Ensure total customer satisfaction through technical services;
6. Implement safety standards in handling customer products and items;
7. Charge and collect payments from customers for technical services rendered;
8. Keep up to date with the advanced technical knowledge to serve the customers even better; and
9. To carry out such other duties that may be assigned from time to time.





BUILDING AND CONSTRUCTION
BUILDING SURVEY
(CONSULTANCY)
LEVEL 3
TECHNICIAN (BUILDING SURVEYOR)

Job Definition:

A Technician (Building Surveyor) is a person who is responsible to provide support to chartered professional surveyors and architects. Involve in multi discipline of surveying include building, general practice, land, minerals, and offshore, planning, quantity and rural. They work on the design and development of new buildings as well as the restoration and maintenance of existing ones.

Job Description:

1. Carry out surveying work;
2. Understand and interpret work instruction/work order;
3. Inspect existing structures at site for faults and interpret the condition;
4. Liaise with representatives of various authority bodies/agencies;
5. Prepare and update building survey feedbacks and reports;
6. Adhere to safety and security procedure;
7. Follow Standard Operating Procedure; and
8. To carry out such other duties that may be assigned from time to time.





BUILDING AND CONSTRUCTION

BUILDING SURVEY

(CONSULTANCY)

LEVEL 4

ASSISTANT BUILDING SURVEYOR

Job Definition:

Assistant Building Surveyor is a person who is responsible to support of the Building Surveyors to provide guidance and mentorship to gain full exposure to the exciting developments which are happening within the business. They work on the design and development of new buildings as well as the restoration and maintenance of existing ones.

Job Description:

1. Carrying out a portfolio of Building Surveying activities as per directed;
2. Edit, endorse production of drawings, specifications, tender documents and any related jobs requirement;
3. Prepare report; obtain approvals in accordance with Building Regulations and Act;
4. Monitor work on site are conducted in accordance with specifications and methods statements;
5. Arrange final inspections and handovers;
6. Adhere to safety and security procedure; and
7. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

BUILDING SURVEY

(CONSULTANCY)

LEVEL 5

BUILDING SURVEYOR

Job Definition:

Building Surveyor is a person who is responsible to provide professional advice, inspection and endorsement on any building and property issues and ensure all project follow full compliance with building and health and safety regulations. They work on the design and development of new buildings as well as the restoration and maintenance of existing ones.

Job Description:

1. Support the Management Surveyors in managing planned project and maintenance works;
2. Manage all department staff, either directly or indirectly;
3. Check, endorse and confirm production of drawings, specifications, tender documents and any related jobs requirement;
4. Prepare and manage project documents and specifications;
5. Liaise with authorities, manufacturer and other related department;
6. Instructing on construction design and management regulations;
7. Adhere to safety, health and security procedures; and
8. Follow Standard Operating Procedure.



SECTOR: BUILDING & CONSTRUCTION

SUB-SECTOR 3/13: ARCHITECTURE





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSULTANCY)

LEVEL 3

CLERK OF WORK

Job Definition:

Clerk of Works is a person who is responsible to provide coordination in all phases of building construction at site. This includes site survey information gathering, work progress monitoring, all-on-site matters handling and act as representative between architects and other departments.

Job Description:

1. Monitor site survey to confirm site information;
2. Monitor and report work progress;
3. Verify and record filing system in accordance to standard operating procedure;
4. Review architectural drawings, specifications and documents;
5. Act as liaison between architect and other department;
6. Provide reports on all on-site matters, including third-party inspections, progress, safety concerns, and causes for delay;
7. Attend all job-site meetings as representative or in conjunction with project manager/architect; and
8. Receive, record, present documents and reports for architect approval, and maintain custody of samples submitted by construction contract.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSULTANCY)

LEVEL 2

ARCHITECTURAL DRAUGHTSMAN

Job Definition:

Architectural Draughtsman is a person who is responsible to prepare submission drawing, perform alteration and extension drawing, conduct site study and perform scaled drawing, plan, elevation and section drawing.

Job Description:

1. Carry out Architecture Draughting
2. Update comment from Senior Architectural Draughtsman;
3. Prepare details and coordinate drawing produced by subordinates;
4. Record existing building and site measurement;
5. Carry out the production of architectural and structural drawings for construction work;
6. Organize file drawing system; and
7. Adhere to safety and security procedure.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSULTANCY)

LEVEL 3

SENIOR ARCHITECTURAL DRAUGHTSMAN

Job Definition:

Senior Architectural Draughtsman is the person who is responsible to check architectural drawings for building, sites plan, audit details drawing produced by subordinates and summarize the drawing detailing in accordance with project requirement.

Job Description:

1. Coordinate drawings with related specifications, bid documents, and drawings and specifications for Mechanical & Electrical services;
2. Interpret and check Architecture's design and layout;
3. Comply to architect comments floor plans, elevations, sections and site plan for building under construction;
4. Audit details and coordinate drawing produced by subordinates;
5. Supervise the production of architectural and structural drawings for construction work;
6. Update progress records of Draughting work; and
7. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSULTANCY)

LEVEL 4

ARCHITECT DESIGNER

Job Definition:

Architect Designer is a person who is responsible to carry out the earliest stages of a building project, start with developing ideas, establishing budgets, assessing the needs of the building and its impact within the local environment. Assist with site sections and work closely on site, ensuring the works are carry out to specific standards.

Job Description:

1. Determine the project brief, needs statement, functional requirements and budget of a project from clients;
2. Analyse data requirements and prepare conceptual design;
3. Prepare and present feasibility reports and design proposals;
4. Produce detailed works, drawings and specifications for tender purpose;
5. Prepare applications for planning and building control departments;
6. Manage project and coordinate the work of inter-division department;
7. Control and monitor project from inception to hand over;
8. Regular site visits to check on progress, to ensure that the project is running on time and within budget; and
9. Ensure the environmental impact of the project is managed.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSULTANCY)

LEVEL 5

ARCHITECTURE MANAGER

Job Definition:

Architecture Manager is a person who is responsible to lead group of designers, oversee all aspects of the design and construction process of a building project, from developing and reviewing building plans to make sure a project meets environmental and zoning standards.

Job Description:

1. Lead group of designers to synthesis desired design output;
2. Develop, organize and review building plans;
3. Authorize cost estimate based on equipment, materials and labour requirements prepared by Quantity Surveyor;
4. Ensure that construction projects meet statutory requirement;
5. Monitor milestone of the master schedule at different stages of the building process according to client needs;
6. Carry out construction site visits, monitor progress and ascertain whether phases of the construction process are in compliance with building plans and project deadlines; and
7. Adhere to safety and security procedure.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 2

PAINTER

Job Definition:

Painter is a person who is responsible to handle painting jobs which includes arrangement of painting materials, equipment and tools for completing a given work order as directed. A painter has various painting skills in relation to the job requirement and knowledgeable in latest painting technologies.

Job Description:

1. Carry out loading and unloading of painting materials, tools and equipment;
2. Assists to mobilise all painting materials, tools, and equipment;
3. Perform surface preparation including protection works to adjacent areas, masking, patching and related works;
4. Perform base coat, intermediate coat and finishing coats for internal wall;
5. Maintains and upkeep painting tools;
6. Perform site cleaning/ clearing activities at work place;
7. Assists temporary structure erection;
8. Adhere to safety and security procedure; and
9. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
ARCHITECTURE
(CONSTRUCTION)
LEVEL 2
PLASTERER

Job Definition:

Plasterer is a person who is responsible to handle plastering jobs which includes arrangement of plastering materials, equipment and tools for completing a given work order as directed. A plasterer has various painting skills in relation to the job requirement and knowledgeable in latest plastering technologies.

Job Description:

1. Check plasterwork storage activities;
2. Check maintenance and upkeep plastering hand tools, machines and equipment activities;
3. Check wall, column and floor surface setting out activities;
4. Check plaster cement mortar quality;
5. Check flat wall and column surface plastering works;
6. Check sand face, trowel and rendering finished works;
7. Perform lath, overhead and curve surface setting out;
8. Perform curve and overhead plastering;
9. Perform decorative finishes plaster; and
10. Perform housekeeping.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 2

BRICKLAYER

Job Definition:

Bricklayer is a person who is responsible to handle brickwork activities which includes arrangement of brickwork materials, equipment and tools for completing a given work order as directed. A bricklayer has various painting skills in relation to the job requirement and knowledgeable in brickwork mortar mixing, brickwork construction and brick wall laying.

Job description:

1. Check suitability of brickwork materials storage area;
2. Check brickwork materials storage;
3. Perform brickwork arch and decorative wall base setting out;
4. Check set out wall base and brick pier;
5. Control brickwork mortar quality;
6. Check constructed straight brick wall;
7. Check constructed brick opening such as door, window opening and
8. mechanical & electrical opening;
9. Perform construction various types of brickwork such as brick piers, brick
10. arches and decorative brickworks;
11. Install glass block panel;
12. Install slim brick;
13. Check constructed honeycomb sleeper wall;



14. Perform housekeeping;
15. Erecting brick wall (brick laying);
16. Carry out inspection on mixed mortar;
17. Carry out inspection on wall erecting straightness;
18. Ensure the installation of damp proof course and exmet; and
19. Ensure adequate watering for brick before erecting.





BUILDING AND CONSTRUCTION
ARCHITECTURE
(CONSTRUCTION)
LEVEL 2
CEILING INSTALLER

Job Definition:

Ceiling Installer is a person who is responsible to perform installation of ceiling panels and accessories during construction. A Ceiling Installer need to complete a given work order as directed according to the job requirement and specifications.

Job Description:

1. Carry out sub structure installation;
2. Carry out installation of ceiling panel and accessories;
3. Carry out site inspection;
4. Organize material handling;
5. Carry out quality control activities;
6. Adhere to safety and security procedure; and
7. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 2

PARTITION INSTALLER

Job Definition:

Partition Installer is a person who is responsible to perform installation of partition track/framing system, panel/board and other accessories during construction. A Partition Installer need to complete a given work order as directed according to the job requirement and specifications.

Job Description:

1. Maintain stock inventory;
2. Perform site setting out;
3. Install top and bottom track/ framing system;
4. Install drywall board/ panel and carry out plastering of joint;
5. Prepare structure for door/ window opening;
6. Adhere to safety and security procedure; and
7. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 2

CARPET INSTALLER

Job Definition:

Carpet Installer is a person who is responsible to perform installation of carpets system and accessories during construction. A Carpet Installer need to complete a given work order as directed according to the job requirement and specifications.

Job Description:

1. Maintain stock inventory;
2. Perform site setting out;
3. Install carpet system;
4. Prepare structure for floor opening;
5. Adhere to safety and security procedure; and
6. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 2

CLADDING INSTALLER

Job Definition:

Cladding Installer is a person who is responsible to perform installation of clad track/framing system, panel/board and other accessories during construction. A Cladding Installer need to complete a given work order as directed according to the job requirement and specifications.

Job Description:

1. Maintain stock inventory;
2. Perform site setting out;
3. Install cladding track/ framing system;
4. Install drywall board/ panel and carry out plastering of joint;
5. Prepare structure for door/ window opening;
6. Adhere to safety and security procedure; and
7. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 2

IRON MONGER INSTALLER

Job Definition:

Iron Monger Installer is a person who is responsible to prepare iron monger component, material, installation tool & equipment, install iron monger component and weld iron monger component according to work standard and specification.

Job Description:

1. Identify iron monger specification;
2. Prepare iron monger component;
3. Prepare iron monger installation tool;
4. Interpret installation drawing;
5. Mark iron monger installation location and position;
6. Carry out iron monger installation work;
7. Weld iron monger component;
8. Check welded iron monger condition; and
9. Check installed iron monger component.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 2

DOOR INSTALLER

Job Definition:

Door Installer is a person who is responsible to adhere to work safety precaution while working and keep working area safe, clean and tidy, select, prepare and maintain tools and equipment for doors installation work, interpret basic technical drawing, perform quality check on doors cutting installation, upkeep machinery before and after use, carry out stock inventory, carry out planar bracket installation, system support stability and sealant works and carry out stained windows/ doors activities.

Job Description:

1. Adhere to work safety precaution while working and keep working area safe, clean and tidy;
2. Select, prepare and maintain tools and equipment for doors installation work;
3. Interpret basic technical drawing;
4. Perform quality check on doors cutting installation;
5. Upkeep machinery before and after use;
6. Carry out stock inventory;
7. Carry out planar bracket installation, system support stability and sealant works; and
8. Carry out stained doors activities.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 2

WINDOW INSTALLER

Job Definition:

Window Installer is a person who is responsible to adhere to work safety precaution while working and keep working area safe, clean and tidy, select, prepare and maintain tools and equipment for windows installation work, interpret basic technical drawing, perform quality check on windows cutting installation, upkeep machinery before and after use, carry out stock inventory, carry out planar bracket installation, system support stability and sealant works and carry out stained doors activities.

Job Description:

1. Adhere to work safety precaution while working and keep working area safe, clean and tidy;
2. Select, prepare and maintain tools and equipment for windows/ doors installation work;
3. Interpret basic technical drawing;
4. Perform quality check on window cutting installation;
5. Upkeep machinery before and after use;
6. Carry out stock inventory;
7. Carry out planar bracket installation, system support stability and sealant works; and
8. Carry out stained window activities.





BUILDING AND CONSTRUCTION
ARCHITECTURE
(CONSTRUCTION)
LEVEL 2
ALUMINIUM & GLAZING INSTALLER

Job Definition:

Aluminium & Glazing Installer is a person who is responsible to adhere to work safety precaution while working and keep working area safe, clean and tidy, select, prepare and maintain tools and equipment for glass installation work, interpret basic technical drawing, perform quality check on glass cutting installation, upkeep machinery before and after use, carry out stock inventory, carry out planar bracket installation, system support stability and sealant works and carry out stained glass activities.

Job Description:

1. Adhere to work safety precaution while working and keep working area safe, clean and tidy;
2. Select, prepare and maintain tools and equipment for glass installation work;
3. Interpret basic technical drawing;
4. Perform quality check on glass cutting installation;
5. Upkeep machinery before and after use;
6. Carry out stock inventory;
7. Carry out planar bracket installation, system support stability and sealant works; and
8. Carry out stained glass activities.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 2

ROOFER

Job Definition:

Roofer is a person who is responsible to set up work area, confirm to method of statement, perform method of statement, install roof truss, construct and fix roof truss joineries, assist and carrying out hoisting work, carry out support for roof truss and carry out sampling for material analysis.

Job Description:

1. Set up work area;
2. Confirm to method of statement;
3. Perform method of statement;
4. Install roof truss;
5. Construct and fix roof truss joineries;
6. Assist and carrying out hoisting work;
7. Carry out support for roof truss; and
8. Carry out sampling for material analysis.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 2

LOUVRE INSTALLER

Job Definition:

A Louvre Installer is a person who is responsible to set up work area, confirm to method of statement, perform method of statement, install louvre, construct and fix louvre joineries, assist and carrying out hoisting work, carry out support for louvre and carry out sampling for material analysis.

Job Description:

1. Set up work area;
2. Confirm to method of statement;
3. Perform method of statement;
4. Install louvre;
5. Construct and fix louvre joineries;
6. Assist and carrying out hoisting work;
7. Carry out support for louvre ; and
8. Carry out sampling for material analysis.





BUILDING AND CONSTRUCTION
ARCHITECTURE
(CONSTRUCTION)
LEVEL 2
GUTTER & RAINWATER DOWNPIPE INSTALLER

Job Definition:

Gutter & Rainwater Downpipe Installer is a person who is responsible to prepare gutter & rainwater downpipe component, material, installation tool & equipment, install gutter & rainwater downpipe component and test installed gutter & rainwater downpipe according to work standard and specification.

Job Description:

1. Identify gutter & rainwater downpipe installation location & position ;
2. Mark gutter & rainwater downpipe bracket location and position;
3. Prepare gutter & rainwater downpipe installation tool and equipment;
4. Install gutter & rainwater downpipe bracket;
5. Install gutter & rainwater downpipe attachment;
6. Install gutter & rainwater downpipe piping;
7. Check gutter & rainwater downpipe installed condition; and
8. Test installed gutter & rainwater downpipe.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 2

BUILT-IN CABINET INSTALLER

Job Definition:

Built-In-Cabinet Installer is a person who is responsible to adhere to work safety precaution while working and keep working area safe, clean and tidy, select, prepare and maintain tools and equipment for built-in cabinet installation work, interpret basic technical drawing, carry out built-in cabinet installation work, perform quality check on built-in cabinet installation, upkeep machinery before and after use and carry out stock inventory.

Job Description:

1. Adhere to work safety precaution while working and keep working area safe, clean and tidy;
2. Select, prepare and maintain tools and equipment for built-in cabinet installation work;
3. Interpret basic technical drawing;
4. Carry out built-in cabinet installation work;
5. Perform quality check on built-in cabinet installation;
6. Upkeep machinery before and after use; and
7. Carry out stock inventory.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 2

STAIRCASE INSTALLER

Job Definition:

Staircase Installer is a person who is responsible to conform to method of statement, perform to method of statement, install staircase, construct and fix staircase joineries, carry out sampling for material analysis, carry out staircase painting.

Job Description:

1. Conform to method of statement;
2. Perform to method of statement;
3. Install timber staircase;
4. Construct and fix staircase joineries;
5. Carry out sampling for material analysis;
6. Carry out staircase painting;
7. Adhere to safety and security procedure; and
8. Follow Standard Operating Procedure.





**BUILDING AND CONSTRUCTION
ARCHITECTURE
(CONSTRUCTION)
LEVEL 2
WATER PROOFING APPLICATOR**

Job Definition:

Water Proofing Applicator is a person who is responsible to confirm to method of statement, carry out concreting works, set up water proofing installation works, inspection on water proofing materials, sampling on support materials for water proofing, utilise proper tools and equipment, carry out water proofing preparation and testing and pipe joint and anchoring support.

Job Description:

1. Confirm to method of statement;
2. Carry out concreting works;
3. Set up water proofing installation works;
4. Carry out inspection on water proofing materials ;
5. Carry out sampling on support materials for water proofing;
6. Utilise proper tools and equipment;
7. Carry out water proofing preparation and testing; and
8. Carry out pipe joint and anchoring support.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 2

PEST CONTROLLER

Job Definition:

Pest Controller is a person who is responsible to adhere to work safety precaution while working and keep working area safe, clean and tidy, select, prepare and maintain tools and equipment for pest control work, interpret construction drawing, carry out pest control injection work, perform quality check on pest control work, upkeep tool and equipment before and after use and carry out stock inventory.

Job Description:

1. Adhere to work safety precaution while working and keep working area safe, clean and tidy;
2. Select, prepare and maintain tools and equipment for pest control work;
3. Interpret construction drawing;
4. Carry out pest control injection work;
5. Perform quality check on pest control work;
6. Upkeep tools and equipment before and after use; and
7. Carry out stock inventory.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 2

INTERIOR DECORATOR

Job Definition:

Interior Decorator is a person who is responsible to adhere to work safety precaution while working and keep working area safe, clean and tidy, select, prepare and maintain tools and equipment for interior decoration, interpret interior design drawing, carry out interior decoration work, perform quality check on interior decoration work, upkeep tool and equipment before and after use and carry out stock inventory.

Job Description:

1. Adhere to work safety precaution while working and keep working area safe, clean and tidy;
2. Select, prepare and maintain tools and equipment for interior decoration work;
3. Interpret interior design drawing;
4. Carry out interior decoration work;
5. Perform quality check on interior decoration work;
6. Upkeep tools and equipment before and after use; and
7. Carry out stock inventory.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 3

SUPERVISOR / DRAUGHTSMAN

Job Definition:

A Supervisor / Draughtsman is a person who is responsible to prepare submission drawings, perform alteration and extension drawings, conduct site study, perform scaled drawings, perform plans, elevations and section drawings, measure existing building and site and follow standard operating procedure.

Job Description:

1. Carry out basic geometrical drawings;
2. Perform re-draw, enlarge and re-dude drawings;
3. Perform wall and partition constructions drawing;
4. Perform roof and ceiling constructions drawing;
5. Organize file drawing system;
6. Adhere to safety and security procedure;
7. Prepare submission drawings;
8. Perform alteration and extension drawings;
9. Conduct site study;
10. Perform scaled drawings;
11. Perform plans, elevations and section drawings;
12. Measure existing building and site; and
13. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

ARCHITECTURE

(CONSTRUCTION)

LEVEL 4

ASSISTANT PROJECT MANAGER

Job Definitions:

An Assistant Project Manager is a person who is responsible to assist their assigned Project Manager in the planning, management direction, project completion, client satisfaction and financial outcome of assigned construction projects.

Job Description:

1. Oversee the development of the Project Brief and Business Case as per directed by Project Manager;
2. Authorise expenditure levels, set stage tolerances and ensure funding for agreed expenditure is available;
3. Authorise or reject proposed changes to cost or timescale beyond tolerance levels and all proposed changes to scope, checking for possible effects on the Business Case under Project Manager supervision;
4. Ensure Risks and Issues are being tracked and mitigated/resolved;
5. Liaise with Programme or Corporate Management on project progress;
6. Organise and chair meetings of the Project Board;
7. Authorise the project's continuance or early closure at stage review meetings of the Project Board; and
8. Hold a Post-Project Review to ensure benefits are realistic as directed.





BUILDING AND CONSTRUCTION
ARCHITECTURE
(CONSTRUCTION)
LEVEL 5
PROJECT MANAGER / CONSTRUCTION MANAGER

Job Definition:

A Project Manager is a person who is responsible to oversee all aspects of the design and construction process of a building project, from developing and reviewing building plans to make sure a project meets environmental and building regulation/act.

Job Description:

1. Prepare commercial construction drawings, technical specification with the assistance of Resident Architect;
2. Analyse and interpret construction drawing;
3. Attend site project management and technical coordination;
4. Coordinate the preparation of the construction drawings and technical specifications with engineering consultants;
5. Prepare and submit progress report to superior;
6. Managerial responsibilities as assigned;
7. Check the accuracy of progress claim;
8. Other duties as assigned;
9. Adhere to safety and security procedure; and
10. Follow Standard Operating Procedure.



SECTOR: BUILDING & CONSTRUCTION

SUB-SECTOR 4/13: CIVIL & STRUCTURE (C&S)





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSULTANCY)

LEVEL 3

CLERK OF WORKS

Job Definition:

Clerk of Works is a person who is responsible to monitor site progress in accordance with procedures and construction drawings. Clerk of Works assists C&S Resident Engineer to monitor, inspect and attend to contractor's query with regards to the drawings and other technical issues at site.

Job Description:

1. File monthly quality inspections reports.
2. Update progress and agreement of monthly valuation accounts.
3. Act as liaison between supervisor, QS and other related department.
4. Prepare reports on all on-site matters; including third-party inspections, progress, safety concerns, and causes for delay as directed.
5. Maintain job-site files, documents, reports and daily log as required.
6. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE
(CONSULTANCY)
LEVEL 4
C & S ASSISTANT RESIDENT ENGINEER

Job Definition:

Assistant Resident Engineer is a person who is responsible to manage and implement delegated aspects of the management systems and control site supervision service provision in support of the Resident Engineer or other Senior Manager.

Job Description:

1. Monitor the site operations on the site by means of regular site visits, inspections.
2. Monitor the work done is according to the drawings
3. Keep, monitor, follow up as necessary and complete records concerning the execution of the works as required and directed by the C & S Resident Engineer.
4. Assist the Resident Engineer with submittals of propose/ongoing project design drawings, materials and alternative from the clients/ stakeholder.
5. Liaison with and coordinate with all technical disciplines.
6. Attend Site Technical Coordination Meetings to discuss project submissions, drawings and construction related matters.
7. Attend progress meeting with the Client, Project Manager, C & S Resident Engineer and other department related personnel's to monitor the progress of works.
8. Assist the Resident Engineer with the preparation of Monthly Reports on the status of the project.
9. Prepare and submit budget estimates, progress and cost tracking reports to C&S Resident Engineer.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSULTANCY)

LEVEL 5

C & S RESIDENT ENGINEER

Job Definition:

Resident Engineer is a person who is responsible to perform engineering duties in plan, design, and oversee construction and maintenance of building structures and facilities.

Job Description:

1. Monitor the construction is according to the construction drawings;
2. Effectively communicate and negotiate with client, local authorities and regulatory bodies;
3. Confer with other inter-related department supervisory personnel, stakeholders and design professionals to discuss and resolve matters such as work procedures, complaints, and construction problems;
4. Assure proper administration of all project payments;
5. Evaluate and authorize estimates, progress, cost track reports submit by C & S Assistant Resident Engineer;
6. Develop and implement quality control programs.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSULTANCY)

LEVEL 2

C & S DRAUGHTSMAN

Job Definition:

Draughtsman is a person who is responsible to prepare drawings, topographical, relief maps used in civil engineering projects, conduct site study, measure existing building and site and follow standard operating procedure.

Job Description:

1. Carry out basic geometrical drawings
2. Compile file drawing system.
3. Perform re-draw, enlarge and re-dude drawings
4. Assist C & S Senior Draughtsman on basic drawings using computer assisted drafting systems (CAD), drafting machines or manual.
5. Carry out draft plans and detailed drawings related to job requirements.
6. Correlate, interpret, and modify simple data obtained from site submitted by upper level or supervisor.
7. Follow Standard Operating Procedures.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSULTANCY)

LEVEL 3

C & S SENIOR DRAUGHTSMAN

Job Definition:

C & S Senior Draughtsman is a person who is responsible to prepare drawings, topographical and relief map. The person also responsible to check drawing produced, evaluate performance off subordinate and follow standard operating procedure.

Job Description:

1. Draw model, detail and draft of civil services.
2. Conduct site inspections and attend site meeting as per directed by senior/managerial level.
3. Check drawing produced by subordinates.
4. Supervise the preparation of civil & structural drawings for construction work.
5. Keep progress records of drafting work.
6. Check construction and materials and supervise the checking of drawings and the preparation of full-size details.
7. Assess and match data received from site submitted by Civil & Structure Draughtsman.
8. Confer with administrative personnel concerning civil & structure work.
9. Adhere to safety and security procedures.
10. Follow Standard Operating Procedures.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSULTANCY)

LEVEL 4

C & S ASSISTANT ENGINEER

Job Definition:

Assistant Engineer is a person who is responsible to assist professional engineer in design work including the planning, design, construction and operation of public works projects.

Job Description:

1. Carry out regular site visit and inspections;
2. Attend to the drawings requisition and conflicts;
3. Follow up mobilisation and de-mobilisation arrangements at site;
4. Keep, monitor, and follow up as necessary and complete records concerning the execution of the works;
5. Prepare proposals/ongoing project design drawings, materials and alternative from the clients/ stakeholder;
6. Liaison with and coordinate with all technical disciplines;
7. Attend Site Technical Coordination Meetings to discuss project submissions, drawings and construction related matters;
8. Attend progress meeting with the Client, Project Manager, C & S Principal Engineer Designer and other department related personnel's to monitor the progress of works;



9. Assist the C & S Principal Engineer Designer with the preparation of Monthly Reports on the status of the project;
10. Prepare and submit estimates, progress and cost tracking reports to C & S Principal Engineer Designer; and
11. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE
(CONSULTANCY)
LEVEL 5
C & S PRINCIPAL ENGINEER DESIGNER

Job Definition:

Principal Engineer Designer is a person who is responsible to analyse and develop of an assigned scope of work. Other responsibility includes conceptual studies, cost and plan development.

Job Description:

1. Lead and co-ordinate Structural Discipline Engineering issues across all disciplines within an assigned project.
2. Provide technical leadership and ensure all work is carried out in accordance with applicable codes and standards.
3. Control, monitor site progress to meet the project scheduled.
4. Organise and manage the resource requirements for the structural discipline within a project.
5. Check of calculations, technical notes, requisitions, specifications, drawings and deliverables produced within discipline.
6. Train and develop of personnel under his/her management.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSTRUCTION)

LEVEL 2

RECYCLE / COLD IN PLACE RECYCLE (CIPR) OPERATOR

Job Definition:

Recycle / Cold in Place Recycle (CIPR) Operator is a person who is responsible to operate the CIPR machine, carry out routine maintenance in accordance with maintenance schedule, ensure the asphalt is placed to the correct line and level and in accordance with the specification, ensure the appropriate guarding is installed and in good working order prior to operation, adhere to safety and security procedure while operating in work area and follow standard operating procedure.

Job Description:

1. Operate the CIPR machine;
2. Carry out routine maintenance in accordance with maintenance schedule;
3. Ensure the asphalt is placed to the correct line and level and in accordance with the specification;
4. Ensure that appropriate guarding is installed and in good working order prior to operation;
5. Adhere to safety and security procedure while operating in work area; and
6. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSTRUCTION)

LEVEL 2

ROAD FURNITURE INSTALLER

Job Definition:

Road Furniture Installer is a person who is responsible to prepare method of statement, understand and interpret construction drawing, identify types and strength of material, tools and equipment for concreting works, inspect concreting work activities, perform supervisory function, prepare and submit report to superior, liaise with other relevant parties for joint inspection and approval and liaise with order relevant parties for concreting work.

Job Description:

1. Prepare method of statement;
2. Determine type of road furniture such as Road sign, guideposts, safety Barriers, light & utility roles Boundary Fan, Raised Road Markers and etc.
3. Submit site difficulty feedback;
4. Established temporary bench mark;
5. Coordinate & perform road work construction;
6. Carry out road work as per setting out plan;
7. Comply the instruction from superior time to time;
8. Adhere to safety and security procedure; and
9. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSTRUCTION)

LEVEL 2

ROADWORK GEOTECHNICAL ASSISTANT TECHNICIAN

Job Definition:

Roadwork Geotechnical Assistant Technician is a person who is responsible to work under close supervision of higher level technicians or staff professionals, perform routine field and/or laboratory work, transport samples or documents, and perform non-technical functions and office tasks.

Job Description:

1. Performs sampling or testing as directed;
2. Provides assistance to other field and/or laboratory personnel;
3. Transports equipment, specimens or documents to field personnel, laboratory, clients or other offices, and provides physical assistance in equipment set-up;
4. Cleans equipment, vehicles and work areas; and
5. Provide assistance to other routine tasks from time to time.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSTRUCTION)

LEVEL 2

CONCRETER

Job Definition:

Roadwork Concreter is a person who is responsible to confirm to method of statement, carry out concreting works, set up concreting works, inspection on materials, carry out sampling on materials and sorting out of sizes and types of bar, utilise proper tools and equipment.

Job Description:

1. Confirm to method of statement;
2. Carry out concreting works;
3. Set up concreting works;
4. Carry out inspection on materials;
5. Carry out sampling on materials;
6. Carry out sorting out of sizes and types of bar; and
7. Utilise proper tools and equipment.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSTRUCTION)

LEVEL 2

BAR BENDER

Job Definition:

Bar Bender is the person who responsible to prepare and produce bar bended according to the bar bending schedule and construction drawings.

Job Description:

1. Check suitability of reinforcement bar storage area;
2. Perform setting bar cutting shear;
3. Perform setting steel bar cutting machines;
4. Check bar bending pin setting;
5. Perform estimating reinforcement materials quantity;
6. Prepare bar bending schedule;
7. Prepare cutting schedule;
8. Check bar cutting work;
9. Check bar bending shape work; and
10. Check reinforcement tying, placing & spacer placing.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSTRUCTION)

LEVEL 2

CARPENTER

Job Definition:

Carpenter is the person who responsible to prepare and produce timber formwork, struts, frames and other timber woks according to the construction drawings.

Job Description:

1. Confirm method of statement;
2. Carry out wood work installation inspection;
3. Perform routine maintenance;
4. Carry out setting work;
5. Coordinate construction scope drawing works with draughting team;
6. Adhere to safety and security procedure; and
7. Follow standard operating procedure.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSTRUCTION)

LEVEL 3

ROADWORK SUPERVISOR

Job Definition:

Roadwork Supervisor is a person who is responsible to prepare method of statement, record testing, supervise execution plan, perform supervisory function, understand & interpret work instruction, carry out site inspection, testing, inspection, site record and submission and understand and interpret work instruction.

Job Description:

1. Prepare method of statement;
2. Record testing;
3. Supervise execution plan;
4. Perform supervisory function;
5. Understand & interpret work instruction;
6. Carry out site inspection;
7. Carry out testing, and record, submission;
8. Adhere to safety and security procedure; and
9. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSTRUCTION)

LEVEL 4

ROADWORK CIVIL ENGINEER

Job Definition:

Roadwork Civil Engineer is a person who is responsible to perform engineering duties in planning, designing, and overseeing construction and maintenance of roads.

Job Description:

1. Analyse survey reports, maps, and other data to plan projects;
2. Interpret construction costs, government regulations, potential environmental hazards, and other factors in planning stages and risk analysis;
3. Compile and submit permit applications to local, state, and federal agencies verifying that projects comply with various regulations;
4. Perform or oversee soil testing to determine the adequacy and strength of foundations;
5. Test building materials, such as concrete, asphalt, or steel, for use in particular projects;
6. Provide cost estimates for materials, equipment, or labour to determine a project's economic feasibility;
7. Use design software to plan and design transportation systems, hydraulic systems, and structures in line with industry and government standards;
8. Perform or oversee, surveying operations to establish reference points, grades, and elevations to guide construction; and
9. Manage the repair, maintenance, and replacement of public and private infrastructure.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSTRUCTION)

LEVEL 5

ROADWORK PROJECT MANAGER

Job Definition:

Roadwork Project Manager is a person who is responsible to oversee all aspects of the design and construction process of a building project, from developing and reviewing building plans to make sure a project meets environmental and building regulation/act.

Job Description:

1. Prepare commercial construction drawings, technical specification according to statutory requirements;
2. Analyse and interpret construction drawing;
3. Attend site project management and technical coordination;
4. Coordinate the preparation of the construction drawings and technical specifications with engineering consultants;
5. Prepare and submit progress report to clients;
6. Prepare project budgeting;
7. Check the accuracy of progress claim;
8. Adhere to safety and security procedure; and
9. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSTRUCTION)

LEVEL 2

BRIDGE GEOTECHNICAL ASSISTANT TECHNICIAN

Job Definition:

Bridge Geotechnical Assistant Technician is a person who is responsible to work under close supervision of higher level technicians or staff professionals, perform routine field and/or laboratory work, transport samples or documents, and perform non-technical functions and office tasks.

Job Description:

1. Performs sampling or testing as directed;
2. Provides assistance to other field and/or laboratory personnel;
3. Transports equipment, specimens or documents to field personnel, laboratory, clients or other offices, and provides physical assistance in equipment set-up;
4. Cleans equipment, vehicles and work areas; and
5. Provide assistance to other routine tasks from time to time.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSTRUCTION)

LEVEL 2

EARTHWORK OPERATOR

Job Definition:

Earthwork Operator is a person who is responsible to confirm to method of statement, perform routine maintenance. Preventive maintenance, prepare complex earth work duty and supervise heavy duty machinery.

Job Description:

1. Confirm to method of statement;
2. Perform routine maintenance;
3. Carry out periodic preventive maintenance;
4. Prepare complex earth work duty;
5. Supervise heavy duty machinery;
6. Operate or tend machinery equipped with scoops, shovel, or buckets to excavate and load loose material;
7. Adhere to safety and security procedure; and
8. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSTRUCTION)

LEVEL 2

BRIDGE STEEL WORKER

Job Definition:

Bridge Steel Worker is a person who is responsible to confirm method of statement, carry out testing, metal & steel work installation inspection, welding works and setting work, perform routine maintenance and coordinate construction scope drawing works with draughting team.

Job Description:

1. Confirm method of statement;
2. Carry out testing;
3. Carry out metal & steel work installation inspection;
4. Perform routine maintenance;
5. Carry out welding works;
6. Carry out setting work;
7. Coordinate construction scope drawing works with draughting team;
8. Adhere to safety and security procedure; and
9. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

CIVIL & STRUCTURE

(CONSTRUCTION)

LEVEL 3

BRIDGE CONSTRUCTION SUPERVISOR / FOREMAN

Job Definition:

Bridge Construction Supervisor / Foreman is a person who is responsible to prepare method of statement, record testing, supervise execution plan, perform supervisory function, understand & interpret work instruction, carry out site inspection, testing, inspection, site record and submission and understand and interpret work instruction.

Job Description:

1. Prepare method of statement;
2. Record testing;
3. Supervise execution plan;
4. Perform supervisory function;
5. Understand & interpret work instruction;
6. Carry out site inspection;
7. Carry out testing, and record, submission;
8. Adhere to safety and security procedure; and
9. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE
(CONSTRUCTION)
LEVEL 4
BRIDGE CONSTRUCTION CIVIL ENGINEER

Job Definition:

Bridge Construction Civil Engineer is a person who is responsible to perform engineering duties in planning, designing, and overseeing construction and maintenance of bridge.

Job Description:

1. Analyse survey reports, maps, and other data to plan projects;
2. Interpret construction costs, government regulations, potential environmental hazards, and other factors in planning stages and risk analysis;
3. Compile and submit permit applications to local, state, and federal agencies verifying that projects comply with various regulations;
4. Perform or oversee soil testing to determine the adequacy and strength of foundations;
5. Test building materials, such as concrete, asphalt, or steel, for use in particular projects;
6. Provide cost estimates for materials, equipment, or labour to determine a project's economic feasibility;
7. Use design software to plan and design transportation systems, hydraulic systems, and structures in line with industry and government standards;
8. Perform or oversee, surveying operations to establish reference points, grades, and elevations to guide construction; and
9. Manage the repair, maintenance, and replacement of public and private infrastructure.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE
(CONSTRUCTION)
LEVEL 5
BRIDGE CONSTRUCTION PROJECT MANAGER

Job Definition:

Bridge Construction Project Manager is a person who is responsible to oversee all aspects of the design and construction process of a building project, from developing and reviewing building plans to make sure a project meets environmental and building regulation/act.

Job Description:

1. Prepare commercial construction drawings, technical specification with the assistance of Resident Architect.
2. Analyse and interpret construction drawing.
3. Attend site project management and technical coordination
4. Coordinate the preparation of the construction drawings and technical specifications with engineering consultants.
5. Prepare and submit progress report to superior
6. Managerial responsibilities as assigned.
7. Check the accuracy of progress claim.
8. Other duties as assigned.
9. Adhere to safety and security procedure
10. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE
(CONSTRUCTION)
WATER RETICULATION & SEWERAGE
LEVEL 2
PIPE LAYER

Job Definition:

Pipe layer is the person who responsible to perform the pipe laying work which include laying of the bedding material, connecting the pipes, jointing work, conceal the leakage and assist on the testing of the laid stretch.

Job Description:

1. Carry out water reticulation pipe installation;
2. Carry out excavation as per setting out;
3. Carry out bedding work;
4. Prepare preparation for testing;
5. Carry out daily work record;
6. Perform method of statement;
7. Perform routine maintenance;
8. Adhere to safety and security procedure; and
9. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE
(CONSTRUCTION)
WATER RETICULATION & SEWERAGE
LEVEL 2
WATER RETICULATION FITTER

Job Definition:

Water Reticulation Fitter is the person who responsible to perform the water pipe laying work which include marking the fitting routed, connecting the pipes, jointing work, conceal the leakage and assist on the testing of the laid stretch.

Job Description:

1. Confirm method of statement;
2. Coordinate water reticulation work;
3. Carry out water reticulation work;
4. Record survey field book;
5. Carry out site survey;
6. Established temporary bench mark;
7. Adhere to safety and security procedure; and
8. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE
(CONSTRUCTION)
WATER RETICULATION & SEWERAGE
LEVEL 2
MACHINE OPERATOR

Job Definition:

Machine Operator is the person who responsible to operate the machineries such as backhoe, hand compactor and cutting machine to support the work coordinated at site.

Job Description:

1. Perform method of statement;
2. Perform routine maintenance;
3. Perform normal water reticulation & sewerage duty;
4. Prepare daily water reticulation & sewerage record;
5. Supervise Light duty machinery;
6. Setup and inspect equipment prior to operation;
7. Adhere to safety and security procedure; and
8. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE
(CONSTRUCTION)
WATER RETICULATION & SEWERAGE
LEVEL 2
AUTHORIZED GAS TESTER (SEWERAGE)

Job Definition:

Authorized Gas Tester is the person who responsible to perform the gas testing in the sewerage system, ensure the testing is performed in accordance to safety regulation and

Job Description:

1. Confirm method of statement;
2. Coordinate water reticulation gas work;
3. Carry out water reticulation gas work;
4. Record survey field book;
5. Carry out site survey;
6. Established temporary bench mark;
7. Adhere to safety and security procedure; and
8. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE
(CONSTRUCTION)
WATER RETICULATION & SEWERAGE
LEVEL 2
WELDER

Job Definition:

Welder is the person who responsible to joint the steel element in project using welding rod and equipment. He will have to team up with other trade worker such as steel worker to accomplish his duty.

Job Description:

1. Confirm method of statement;
2. Coordinate water reticulation welding work;
3. Carry out water reticulation welding work;
4. Record survey field book;
5. Carry out site survey;
6. Established temporary bench mark;
7. Adhere to safety and security procedure; and
8. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE
(CONSTRUCTION)
WATER RETICULATION & SEWERAGE
LEVEL 2
CCTV OPERATOR (SEWERAGE)

Job Definition:

CCTV Operator (Sewerage) is a person who is responsible to operate and monitor all systems, including CCTV, within the Control Centre in a professional and efficient manner. To ensure integrity, accuracy and confidentiality of all information gained by compliance with quality standards and legislation, whilst preserving the rights of the individual.

Job Description:

1. Liaise with the police, other agencies and members of staff to ensure the appropriate use of the system. To include all evidential records and witness statements to a standard acceptable to the rules of evidence;
2. Record all events and actions taken in a clear, legible and accurate written format;
3. Provide an efficient and courteous radio and telephone answering service and deal efficiently with all enquiries;
4. Report equipment failure to the site supervisor to maximise operation of the system;
5. Maintain a secure system for providing data in accordance with the regulations set up by the company;
6. Ensure the security of the control room and equipment is maintained at all times; and



7. Maintain the provision of information required by the CCTV Manager and the supervisor to assist the monitoring of the CCTV system and other security systems in accordance with the regulations set up by the company.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE
EARTHWORK /RETAINING WALL / GEOTECHNICAL
LEVEL 2
BLASTING SPECIALIST

Job Definition:

A Blasting Specialist is the person who is responsible to perform blasting work for rock at site as specified and upon request by the client. He must possess special licence from authority and permit to perform duty on project basis.

Job Description:

1. Inspect retaining wall surface;
2. Clean retaining wall surface;
3. Prepare blasting equipment and material;
4. Carry out retaining wall blasting work; and
5. Check and mark retaining wall condition.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE
EARTHWORK /RETAINING WALL / GEOTECHNICAL
LEVEL 2
SOIL IMPROVEMENT INSTALLER

Job Definition:

Soil Improvement Installer is the person who is responsible to perform soil stability work such as vertical & horizontal drain installer, soil nailing, unsuitable material replacement and settlement marker probe installation.

Job Description:

1. Perform method of Statement;
2. Carry out daily work record;
3. Prepare soil investigation probe;
4. Perform soil improvement work;
5. Install monitoring probe;
6. Perform routine maintenance;
7. Adhere to safety and security procedure; and
8. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE (CONSTRUCTION)
STRUCTURE, FENCE & GATE
LEVEL 2
BRICKLAYER

Job Definition:

Bricklayer is the person who responsible to perform brick arrangement, layer and joints. For various types of brick material.

Job description:

1. Check suitability of brickwork materials;
2. Check surface levels;
3. Perform brickwork base setting out;
4. Check set out wall base and brick pier;
5. Control brickwork mortar quality;
6. Check constructed brick wall verticality and alignment;
7. Check constructed brick opening such as door, window opening and Conduits;
8. Perform construction various types of brickwork such as brick piers, brick arches and decorative brickworks; and
9. Perform housekeeping.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE (CONSTRUCTION)
STRUCTURE, FENCE & GATE
LEVEL 2
PLASTERER

Job Definition:

Plasterer is the person who is responsible to perform plastering work for the purpose for finishing work or to ready the surface for cladding material.

Job Description:

1. Check maintenance and upkeep plastering hand tools, machines and equipment
2. Check wall, column and floor surface setting out activities;
3. Check plaster cement mortar quality;
4. Check flat wall and column surface plastering works;
5. Check sand face, trowel and rendering finished works;
6. Perform lath, overhead and curve surface setting out;
7. Perform curve and overhead plastering;
8. Perform decorative finishes plaster; and perform housekeeping.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE (CONSTRUCTION)
STRUCTURE, FENCE & GATE
LEVEL 2
FENCE & GATE INSTALLER

Job Definition:

Fence & Gate Installer is the person who is responsible to check, prepare and perform fence & gate installation material, tool and equipment according to work standard and specification. He will have to cooperate with other trade area such as welder, brick layer and concreter to complete his task.

Job Description:

1. Check fence/gate area condition;
2. Prepare fence/gate tool and equipment;
3. Identify and mark fence/gate structure position;
4. Install fence/gate structure;
5. Install fence/gate component;
6. Adjust fence/gate according to specification and condition; and
7. Check fence/gate installation work.





BUILDING AND CONSTRUCTION
CIVIL & STRUCTURE (CONSTRUCTION)
STRUCTURE, FENCE & GATE
LEVEL 2
PAINTER

Job Definition:

A Painter is a person who is responsible to perform surface coating work for internal and external surface area of a structure. He must be tedious and meticulous person.

Job Description:

1. Evaluate and prepare painting materials;
2. Perform surface preparation including protection works to adjacent areas, masking, patching and related works;
3. Perform base coat, intermediate coat and finishing coats for internal wall;
4. Maintains and upkeep painting tools;
5. Perform site cleaning/ clearing activities at work place;
6. Assists temporary structure erection;
7. Adhere to safety and security procedure; and
8. Follow Standard Operating Procedure.



SECTOR: BUILDING & CONSTRUCTION

SUB-SECTOR 5/13: QUANTITY SURVEY





BUILDING AND CONSTRUCTION

QUANTITY SURVEY (QS)

(CONSULTANCY)

LEVEL 3

QS CLERK OF WORK

Job Definition:

QS Clerk of Work is a person who is responsible to provide both technical support and administrative services under the general direction of responsible Quantity Surveyor or designated /supervisor/manager at the work site to provide both technical support and administrative services.

Job Description:

1. File monthly CVR reports;
2. Keep record production and agreement of monthly valuation accounts;
3. Assist in tenders, procurement, documents and report review;
4. Document cash project, cash flow as per instructed by superior;
5. Act as liaison between supervisor, QS and other related department;
6. Prepare reports on all on-site matters; including third-party inspections, progress, safety concerns, and causes for delay as directed;
7. Maintain job-site files, documents, reports and daily log as required;
8. Perform related duties as assigned; and
9. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

QUANTITY SURVEY (QS)

(CONSULTANCY)

LEVEL 4

QS CONTRACT EXECUTIVE

Job Definition:

QS Contract Executive is a person who is responsible to help Quantity Surveyors to prepare estimates and costs of the work.

Job Description:

1. Produce monthly CVR reports;
2. Production and agreement of monthly valuation accounts;
3. Highlight and escalate commercial risks;
4. Manage tenders and procurement;
5. Manage and estimate cash project, cash flow under QS supervision;
6. Participate in tenders, procurement, documents and report review;
7. Act as liaison between supervisor, QS and other related department;
8. Review reports on all on-site matters; including third-party inspections, progress, safety concerns, and causes for delay submitted by Clerk of Work;
9. Evaluate job-site files, documents, reports and daily log as required;
10. Perform related duties as assigned; and
11. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

QUANTITY SURVEY (QS)

(CONSULTANCY)

LEVEL 5

QS CONTRACT MANAGER

Job Definition:

QS Contract Manager is responsible to manage a number of contracts ensuring they are delivered safely on time, to lead and oversee the Quantity Surveyor Team.

Job Description:

1. General preparation and submission of tenders including measurement of quantities;
2. Monitor timely award of sub-contracts and timely submission of progress claims;
3. Comprehensive documented of Change Orders;
4. Assist in sample submission, material ordering and material controls;
5. Monitoring of major cost elements and highlighting deviations;
6. Undertake cost analysis for repair and maintenance project work;
7. Ascertain client's requirements and undertake feasibility studies;
8. Manage risk and control cost;
9. Advise on procurement strategy; and
10. Review completeness of tender documentation and clarify with Projects Consultants on discrepancies in tender documentation.





BUILDING AND CONSTRUCTION
QUANTITY SURVEY (CONSTRUCTION)
LEVEL 3
QS ASSISTANT TECHNICIAN

Job Definition:

QS Assistant Technician is a person who is responsible to help quantity surveyors in working out the cost of building projects. The work involves estimating the quantities and costs of materials and labour, for example. They also take measurements on-site once a project is under way so they can calculate actual costs .

Job Description:

1. Producing monthly CVR reports;
2. Production and agreement of monthly valuation accounts;
3. Highlighting and escalating commercial risks;
4. Manage subcontractor tenders and procurement; and
5. Manage cash project cash flow.





BUILDING AND CONSTRUCTION
QUANTITY SURVEY (CONSTRUCTION)
LEVEL 4
QS CONTRACT EXECUTIVE

Job Definition:

QS Contract Executive is a person who is responsible to manage a number of contracts ensuring they are delivered safely, on time, to budget and with high levels of client and resident satisfaction.

Job Description:

1. General preparation and submission of tenders including measurement of quantities;
2. Responsible in the sourcing of competitive and reliable suppliers and sub-contractors;
3. Monitor timely award of sub-contracts and timely submission of progress claims;
4. Comprehensive documenting of Change Orders;
5. Administer project and subcontractors' final account;
6. Assist in sample submission, material ordering and material controls;
7. Monitoring of major cost elements and highlighting deviations;
8. To take ownership of all aspects of each project under their control from estimating handover through to completion of the Defects Liability Period; and
9. Provide project direction, focus and consistency across a number of schemes.





BUILDING AND CONSTRUCTION
QUANTITY SURVEY (CONSTRUCTION)
LEVEL 5
QS CONTRACT MANAGER

Job Definition:

QS Contract Manager is a person who is responsible to lead and oversee the Quantity Surveyor Team.

Job Description:

1. Lead and oversee the Quantity Surveyor Team Pre Contract;
2. Repair tender and contract documents including bills of quantities;
3. Undertake cost analysis for repair and maintenance project work;
4. Ascertain client's requirements and undertake feasibility studies;
5. Manage risk and control cost;
6. Advise on procurement strategy;
7. Evaluate technical / commercial submission of Sub contractors and vendors;
8. Perform as a Tender "Owner" when directed and carry out full coordination amongst the Tender Team members; and
9. Review completeness of tender documentation and clarify with Projects Consultants on discrepancies in tender documentation.



SECTOR: BUILDING & CONSTRUCTION

SUB-SECTOR 6/13: GEOMATICS & LAND SURVEY





**BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
(CONSULTANCY)
LEVEL 4
ASSISTANT PROJECT MANAGER**

Job Definition:

Assistant Project Manager is a person who is responsible to aid the assigned Project Manager in the planning, project completion, client satisfaction, project deliverables and financial planning of the assigned geomatics and land survey projects. He/she reports to the Project Manager.

Job Description:

1. Coordinate contractual requirements, design geomatics & land survey drawings and project specifications;
2. Assist Project Manager in achieving the respective project management objectives and deliverables;
3. Conduct and minute project team meetings;
4. Monitor project development and progress using suitable project management tool and software;
5. Monitor, update and to ensure the safe keeping of all project documentation including project files;
6. Supervise and coordinate their subordinates and all of the project teams; and
7. Assist the Project Manager in preparing proposal and work specification for the purpose of tendering and / or checklist.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 5
PROJECT MANAGER

Job Definition:

Project manager is the person responsible for leading a project from its inception to execution and final deliverables. This includes planning, execution, controlling and managing the people, resources and scopes of the project. Project managers must have the discipline to create clear and attainable objectives and to see them through to successful completion. The project manager has full responsibility and authority to complete the assigned project. He/she reports to Senior Project Manager and/or Project Director.

Job Descriptions:

1. Coordinate and lead all contractual requirements, design drawings and project specifications;
2. Prepares proposals and work specifications for the purpose of tendering and / or checklist;
3. Prepare project scheduling and oversee the project activities until its completion;
4. Provide professional advice on the management of projects;
5. Lead and organize the various professional people working on a project;
6. Carry out risk assessment on the particular project;
7. Monitor sub-contractors to ensure guidelines are maintained;
8. Oversee the accounting and procurement of the project; and
9. Lead the project team meetings and to attend client's meeting as well as resolves technical issues and other matters pertaining to the project.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 3
LAND SURVEY TECHNICIAN

Job Definition:

Land Survey Technician is responsible in performing the computer-aided drafting and carrying out cadastral and engineering survey which are to prepare a variety of complex maps, including property ownership, land use, city and district maps, topographical and detail maps, engineering and as-built drawings. He/she also performs in searching and analysing various recorded documents, drawings and maps in order to establish property ownership, engineering plans, detailed and topographical maps. He/she reports to Assistant Land Surveyor.

Job Description:

1. Gather spatial data and property information for the preparation of cadastral and/or engineering survey;
2. Carry out site reconnaissance at the specified survey areas;
3. Perform and execute cadastral and/or engineering survey on projects such as buildings, highways and roadways, railways and seaports;
4. Perform calculations and field layouts for horizontal and vertical angles, bearings and spiral curves;
5. Perform cadastral and engineering survey data processing and editing using computer aided drafting software;
6. Assist the Assistant Land Surveyor in developing methods and procedures for conducting cadastral and engineering surveys; and
7. Carry out survey equipment care and maintenance before and after every survey work.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 4
ASSISTANT LAND SURVEYOR

Job Definition:

Assistant Land Surveyor is responsible in supporting the cadastral and engineering survey projects by adapting and applying the specified surveying techniques, leading the designated survey teams. He/she shall also carry out technical planning and controlling, performing computer aided drafting, preparing technical reports and calculations. He/she reports to Land Surveyor.

Job Description:

1. Determine cadastral and engineering surveys techniques and procedures for the specified survey projects;
2. Gather and assess spatial data and property information for the preparation of cadastral and/or engineering survey;
3. Lead the survey project teams by monitoring and/or carrying out the survey works until its completion and performs computer aided drafting;
4. Monitor and resolves cadastral and engineering survey technical problems;
5. Perform trigonometric calculations such as adjusting traverses and calculation of coordinates, control points, quantities and areas;
6. Ensure the safety standards and the quality of the surveyed data;



7. Maintain project team accomplishments by communicating essential information, contributing information to team meetings and reports; and
8. Ensure operation of survey equipment by calibrating equipment, completing preventive maintenance requirements and troubleshooting malfunctions.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 4
LAND SURVEYOR

Job Definition:

Land Surveyor is the person who performs the cadastral and engineering survey duties in planning, designing, and overseeing the survey works that are related to construction and maintenance of building structure, facilities and infrastructures. He/she reports to Project Manager.

Job Description:

1. Analyse survey reports, maps, drawings, blueprints, aerial photography, satellite imagery, topographical or cadastral data for the preparation of the survey works;
2. Carry out technical planning and designing the methodology and procedures of the survey works;
3. Inspect survey sites to monitor progress and ensures conformance to the survey specifications and regulations, safety standards and compliance with environmental;
4. Lead the survey teams to meet the survey project objectives and deliverables within the required time-scales;
5. Verify and confirm cadastral and engineering drawings and plans;
6. Estimate quantities and cost of materials, equipment, or labour to determine project feasibility and project execution;
7. Provide technical advice to managerial personnel regarding survey works plan and design, software and hardware acquisitions and maintenance.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 3
UTILITY SURVEY TECHNICIAN

Job Definition:

Utility Survey Technician determines the exact locations and positions of underground features and buried utility. He/she performs the detection of the utility features and produces a plan or map indicating the routes, depths and positions of the surveyed utilities using computer-aided drafting. He/she reports to Assistant Utility Surveyor.

Job Description:

1. Gather spatial data and property information for the preparation of utility mapping;
2. Carry out site reconnaissance at the specified survey areas to correctly identify the buried utilities;
3. Perform and execute utility mapping survey on projects such as buildings, highways and roadways, railways and seaports;
4. Perform calculations and field layouts for horizontal and vertical angles, bearings and spiral curves;
5. Perform utility mapping data processing and editing using a computer aided drafting software;
6. Assist the Assistant Utility Surveyor in developing methods and procedures for conducting the utility mapping projects; and
7. Carry out utility mapping equipment care and maintenance before and after every survey work.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 4
ASSISTANT UTILITY SURVEYOR

Job Definition:

Assistant Utility Surveyor is responsible in supporting the utility mapping projects by carrying out the safe, accurate and timely identification and recording of utility apparatus by means of tracing and marking utility providers' apparatus. He/she applies the specified surveying techniques and leading the designated survey teams. He/she shall also carry out technical planning and controlling, performing computer aided drafting, preparing technical reports and calculations. He/she reports to Utility Surveyor.

Job Description:

1. Determine utility mapping techniques and procedures for the specified survey projects;
2. Gather and assess spatial data and property information for the preparation of utility mapping works;
3. Lead the survey project teams by monitoring and/or carrying out the survey works until its completion within the required time-scales;
4. Perform computer-aided drafting for the preparation and final production of the utility mapping drawings and plans;
5. Monitor and resolve utility mapping technical problems;
6. Perform trigonometric calculations such as adjusting traverses and calculation of coordinates, control points, quantities and areas;
7. Ensure the safety standards and the quality of the surveyed data;



8. Maintain project team accomplishments by communicating essential information, contributing information to team meetings and reports; and
9. Ensure operation of survey equipment by calibrating equipment, completing preventive maintenance requirements and troubleshooting malfunctions.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 5
UTILITY SURVEYOR

Job Definition:

Utility Surveyor is the person who performs the utility mapping duties in planning, designing, and overseeing the survey works by correctly, safely, and efficiently locate underground utilities including telecommunications, electric, gas, sewage and water. He/she manages daily survey route and schedule within certain parameters. He/she reports to Project Manager.

Job Description:

1. Analyse survey reports, maps, drawings, blueprints, aerial photography, satellite imagery, topographical and cadastral data for the preparation of utility mapping survey;
2. Carry out technical planning and designing the methodology and procedures of the survey works;
3. Inspect survey sites to monitor progress and ensures conformance to the survey specifications and regulations, safety standards and compliance with environmental;
4. Lead the survey teams to meet the survey project objectives and deliverables within the required time-scales;
5. Verify and confirm utility mapping drawings and plans;
6. Estimate quantities and cost of materials, equipment, or labour to determine project feasibility and project execution; and
7. Provide technical advice to managerial personnel regarding survey works plan and design, software and hardware acquisitions and maintenance.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 3
PHOTOGRAMMETRY TECHNICIAN

Job Definition:

Photogrammetry Technician is a person who is responsible for the production and review of 3-D digital maps using digital imagery. He/she also performs various aerial mapping and surveying tasks to provide base data to plan and design construction, engineering, monitoring, conservation, plantation projects. Basic knowledge in the current photogrammetry software and land surveying techniques are essential. He/she reports to Assistant Photogrammetrist.

Job Description:

1. Operate current generation of photogrammetric workstations;
2. View and analyse aerial survey photography in 3D;
3. Gather and compile topographic and digital terrain data;
4. Create and edit digital terrain model surface files;
5. Perform softcopy aero triangulation;
6. Edit and archive planimetric design files using graphics workstation;
7. Create digital orthophotography and mosaics;
8. Carry out site reconnaissance at the specified survey areas;
9. Perform geodetic survey data processing and editing using specific software;
10. Assist the Assistant Photogrammetrist in developing methods and procedures; and
11. Carry out survey equipment care and maintenance before and after every ground survey work.





**BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 4
ASSISTANT PHOTOGRAMMETRIST**

Job Definition:

Assistant Photogrammetrist is a person who is responsible in assisting Photogrammetrist to collect, analyse, and interpret geographic information provided by geodetic surveys, aerial photographs and satellite imageries. He/she is also performs research, study and preparing maps and other spatial data in digital or printed form for various natural and built environment applications. He/she reports to Photogrammetrist.

Job Description:

1. Perform analytical aerial triangulation for the extension of mapping control;
2. Operate current generation of photogrammetric workstations;
3. Perform site reconnaissance of the survey area;
4. Travel over photographed areas in order to observe, identify, record, and verify all relevant features;
5. Identify, scale, and orient geodetic points, elevations and other plan metric or topographic features, applying standard mathematical formulas;
6. Lead the survey project teams by monitoring and/or carry out the geodetic survey until its completion within the required time-scales;
7. Compile data required for map preparation, including aerial photographs, survey notes, records, reports, and original maps;



8. Examine, analyse and assess data from ground survey, report, aerial photograph, and satellite image in order to prepare topographic maps, aerial-photograph mosaics, and related charts;
9. Coordinate project during the absence of the Photogrammetrist;
10. Maintain project team accomplishments by communicating essential information, contributing information to team meetings and reports;
11. Ensure the safety standards and the quality of the surveyed data; and
12. Ensure operation of survey equipment by calibrating equipment, completing preventive maintenance requirements and troubleshooting malfunctions.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 5
PHOTOGRAMMETRIST

Job Definition:

Photogrammetrist is a person who is responsible in collecting, analysing and interpreting geographic information provided by geodetic surveys, aerial photographs and satellite imageries. He/she is in charge in planning, overseeing and leading research, study and preparing maps and other spatial data in digital or printed form for various natural and built environment applications. He/she reports to Project Manager.

Job Description:

1. Carry out photogrammetry plan and schedule;
1. Oversee photogrammetry project teams to achieve final deliverables;
2. Oversee photogrammetry project team's safety, hardware and software maintenance and care and project quality standards;
3. Select aerial photographic and remote sensing techniques and plotting equipment needed to meet required standard of accuracy;
4. Delineate aerial photographic detail, such as control point, hydrography, topography, and cultural features, using precision stereo plotting apparatus or drafting instruments.
5. Build and update digital database'
6. Prepare and alter trace map, chart, table, detailed drawing, and three-dimensional optical models of terrain, using stereoscopic plotting and computer graphics equipment;



7. Determine guidelines that specify which source material is acceptable for use;
8. Study legal records in order to establish boundaries of local, national, and international properties;
9. Travel over photographed areas in order to observe, identify, record, and verify all relevant features;
10. Identify, scale, and orient geodetic points, elevations and other plan metric or topographic features, applying standard mathematical formulas;
11. Collect information about specific features of the Earth, using aerial photography and other digital remote sensing techniques;
12. Revise existing maps and charts, making all necessary corrections and adjustments;
13. Compile data required for map preparation, including aerial photographs, survey notes, records, reports, and original maps;
14. Inspect final compositions in order to ensure completeness and accuracy;
15. Verify map content and layout, as well as production specifications such as scale, size, projection, and colours, and direct production in order to ensure that specifications are followed; and
16. Verify data from ground surveys, reports, aerial photographs, and satellite images in order to prepare topographic maps, aerial-photograph mosaics, and related charts.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 3
HYDROGRAPHIC SURVEY TECHNICIAN

Job Definition:

Hydrographic Survey Technician is a person who is responsible to employ a variety of tools and equipment, ranging from sonar systems to computers and peripherals, Global Navigation Satellite System (GNSS), sampling equipment, and deck equipment to chart ocean waters, landforms and underwater features. He/she reports to Junior Hydrographic Surveyor.

Job Description:

1. Operate surveying equipment such as total stations, prisms, GNSS sensors and levels;
2. Record survey measurements and descriptive data, using notes, sketches, inked tracings and database information;
3. Perform calculations to determine traverse closures and adjustments, azimuths, earth curvature corrections, level runs and placement of markers.
4. Conduct surveys to ascertain the locations of natural features and human-made structures on the Earth's surface, underground, and underwater, using electronic distance-measuring equipment and other surveying instruments.
5. Operate and update land-information computer systems, performing tasks such as storing data, making inquiries and producing plots and reports;
6. Lay out grids and determine horizontal and vertical controls;



7. Compare survey computations with applicable standards in order to determine adequacy of data;
8. Collect information needed to carry out new surveys, using source maps, previous survey data, photographs, computer records and other relevant information;
9. Prepare topographic and contour maps, including site features and other relevant information such as charts, drawings, and survey notes;
10. Maintain equipment used by surveying crews;
11. Provide assistance in the development of methods and procedures for conducting field surveys; and
12. Conduct pre-cruise logistics and survey planning.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 4
JUNIOR HYDROGRAPHIC SURVEYOR

Job Definition:

Junior Hydrographic Surveyor is a person who is responsible for surveying and charting inland, coastal and ocean waters. They measure, collect, analyse and describe aspects of the water cycle, the ocean floor, currents, tide measurements and wave information. They are also assisting the Hydrographic Surveyor in planning, designing and monitoring the hydrographic surveying activities. He/she directly reports to Hydrographic Surveyor.

Job Description:

1. Analyse hydrographic data to determine trends in movement and utilization of water;
2. Read meters and gauge to measure waterflow and pressure in streams, conduits, and pipelines, and records data;
3. Measure water level in lakes, reservoirs, and tanks;
4. Direct and supervise work of subordinate members of surveying parties;
5. Use specialised technical software and equipment including satellite and terrestrial positioning systems, sonars, single and multibeam echo sounders, laser scanners;
6. Examine and assess survey data from the field team;
7. Provide accurate and reliable information for other disciplines such as navigation, dredging, coastal works, seabed telephone cables, environmental monitoring, aquaculture, marine wind farm development, oceanographic research, bridge construction and oil, gas and mineral resource exploration;



8. Provide data for oceanographic studies;
9. Prepare graphs and charts to illustrate water patterns;
10. Install, calibrate and maintain metering instruments; and
11. Recommend locations for metering stations and instrument placement.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 5
HYDROGRAPHIC SURVEYOR

Job Definition:

Hydrographic Surveyor is designated to collect scientific data, precise positioning and mapping the underwater topography of oceanic and inland bodies of water. This person is responsible for planning, designing and overseeing the hydrographic surveying and charting activities for the purpose of navigation, aquaculture projects, the construction of artificial harbours, ports and dock facilities and the exploration and extraction of minerals, ores, oil and gas. He/she monitors, measures, analyses and describes aspects of the water cycle, the ocean floor, currents, tide measurements and wave information. This person reports to Hydrographic Survey Party Chief or Project Manager.

Job Description:

1. Carry out hydrographic surveying planning and scheduling;
2. Lead hydrographic surveying project teams to achieve final deliverables, as vessel-based manager;
3. Oversee hydrographic surveying project team's safety, hardware and software maintenance and care and project quality standards;
4. Use specialised technical software and equipment including satellite and terrestrial positioning systems, sonars, single and multibeam echo sounders, laser scanners and LiDAR (light detection and ranging) equipped aircraft to provide data for the production of nautical charts and maps;



5. Use remotely operated and autonomous underwater vehicles to acquire data in deep oceans;
6. Verify surveyed data from the project teams;
7. Operate specialised technical software and geographical information systems (GIS) to manage the integration, processing and presentation of data to clients;
8. Deal with clients to provide tenders and results;
9. Produce technical reports;
10. Provide accurate and reliable information for other disciplines such as navigation, dredging, coastal works, seabed telephone cables, environmental monitoring, aquaculture, marine wind farm development, oceanographic research, bridge construction and oil, gas and mineral resource exploration;
11. Work in a variety of different situations and applications including seabed mining, oil and gas exploration, the construction of ports, the provision of navigational charts, and the positioning of navigational aids;
12. Source information on seabed type, water movements and waves;
13. Provide data for oceanographic studies; and
14. Review company procedures and software projects, and providing feedback on courses and in-house training.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 3
REMOTE SENSING TECHNICIAN

Job Definition:

Remote Sensing Technician is a person who is responsible to apply remote sensing technologies in areas such as urban planning, flight planning or natural resources management. He/she involves analysing data required from satellites, aircraft or ground-based platforms, using statistical analysis software, image analysis software or Geographic Information System (GIS). This person reports to Remote Sensing Assistant Engineer.

Job Description:

1. Analyse data obtained from remote sensing systems;
2. Develop automated processes to correct the presence of image distorting objects;
3. Collect supporting climatic or field survey data to corroborate remote sensing data analysis;
4. Format complied images to increase their usefulness.
5. Direct installation or testing of new remote sensing hardware or software and other equipment; and
6. Update geospatial databases.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 4
REMOTE SENSING ASSISTANT ENGINEER

Job Definition:

Remote Sensing Assistant Engineer is responsible in providing support and technical matters in remote sensing technologies to Remote Sensing Engineer. He/she applies specific remote sensing technique and surveying methods as well as leading a field team. He/she reports to Remote Sensing Engineer.

Job Description:

1. Participate in the planning or development of mapping projects;
2. Maintain records of survey data;
3. Document methods used and write technical reports containing information collected;
4. Develop specialized computer software routines to customize and integrate image analysis;
5. Collect verification data on the ground, using equipment such as global positioning receivers, digital cameras, or notebook computers;
6. Verify integrity and accuracy of data contained in remote sensing image analysis systems;
7. Prepare documentation or presentations, including charts, photos, or graphs;
8. Operate airborne remote sensing equipment, such as survey cameras, sensors, or scanners;



9. Monitor raw data quality during collection and make equipment corrections as necessary;
10. Integrate remotely sensed data with other geospatial data;
11. Evaluate remote sensing project requirements; and
12. Develop or maintain geospatial information databases.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 5
REMOTE SENSING ENGINEER

Job Definition:

Remote Sensing Engineer is responsible in the planning, development and execution of remote sensing projects. He/she is also providing professional technical advice and recommendation in remote sensing technologies. This person applies specific remote sensing technique and surveying methods as well as leading a project team. He/she reports to Project Manager.

Job Description:

1. Analyse data acquired from aircraft, satellites, or ground-based platforms, using statistical analysis software, image analysis software, or Geographic Information Systems (GIS);
2. Manage or analyse data obtained from remote sensing systems to obtain meaningful results;
3. Process aerial or satellite imagery to create products such as land cover maps;
4. Develop or build databases for remote sensing or related geospatial project information;
5. Monitor quality of remote sensing data collection operations to determine if procedural or equipment changes are necessary;
6. Attend meetings or seminars or read current literature to maintain knowledge of developments in the field of remote sensing;
7. Prepare or deliver reports or presentations of geospatial project information;



8. Conduct research into the application or enhancement of remote sensing technology;
9. Discuss project goals, equipment requirements, or methodologies with colleagues or team members;
10. Organize and maintain geospatial data and associated documentation;
11. Design or implement strategies for collection, analysis, or display of geographic data;
12. Collect supporting data, such as climatic or field survey data to corroborate remote sensing data analyses;
13. Develop new analytical techniques or sensor systems;
14. Train technicians in the use of remote sensing technology;
15. Direct all activity associated with implementation, operation, or enhancement of remote sensing hardware or software; and
16. Recommend new remote sensing hardware or software acquisitions.





BUILDING AND CONSTRUCTION

GEOMATICS AND LAND SURVEY

LEVEL 3

GEOGRAPHIC INFORMATION SYSTEM (GIS) TECHNICIAN

Job Definition:

GIS Technician is a person who is responsible to determine the exact locations and positions of natural and man-made features by collecting data from maps, surveys, remote sensing and GIS databases. He/she largely works with sophisticated GIS software to model and analyse visible surface features, as well as what is hidden underground and underwater. This person reports to GIS Assistant Engineer.

Job Description:

1. Gather spatial data, property information on buildings and other structures and natural features;
2. Assist in developing methods and procedures for conducting field surveys;
3. Link spatial data to various tabular data for land administration purposes;
4. Conduct detailed surveys on related projects;
5. Produce thematic maps and websites; and
6. Create and process digital databases to compile geographical information in numerical and graphical formats.





BUILDING AND CONSTRUCTION

GEOMATICS AND LAND SURVEY

LEVEL 4

GEOGRAPHIC INFORMATION SYSTEM (GIS) ASSISTANT ENGINEER

Job Definition:

GIS Assistant Engineer makes maps and customized geographic information systems (GIS) applications and manipulates data to serve a variety of purposes. They read and interpret maps, manipulate and understand geospatial data and manage data entered into a GIS database. He/she reports to GIS Engineer.

Job Description:

1. Participate as a member of a multi discipline team on integrated studies, ensuring that they are completed to a high standard, on time and within budget;
2. Provide data input for the provision of technical reports and recommendations;
3. Maintain and continuously improve geospatial data management;
4. Review the existing technical files and recommend, seek approval and implement changes;
5. Conduct detailed surveys on related projects;
6. Produce thematic maps and websites; and
7. Create and process digital databases to compile geographical information in numerical and graphical formats.





BUILDING AND CONSTRUCTION
GEOMATICS AND LAND SURVEY
LEVEL 5
GEOGRAPHIC INFORMATION SYSTEM (GIS) ENGINEER

Job Definition:

A GIS Engineer must be extremely familiar with spatial and attribute data in GIS system to produce geospatial information to be used in various applications such as built and natural environment. He/she must be proficient in a number of computer applications and must specifically possess skills in geospatial data base management systems. This person needs to have experience with cartography and map design as well as responsible for spatial analysis and representation of data. He/she reports to Project Manager.

Job Description:

1. Compile and integrate geospatial data from a wide variety of sources for analysis;
2. Perform project reporting, data creation, data conversion, data transfer and map production;
3. Make sense of GIS data and applies the information to planning and real world situations;
4. Responsible for spatial analysis and representation of data in maps;
5. Perform programming or scripting to automate tasks;
6. Read and interpret data from spatial and non-spatial databases;
7. Provide technical and customer support to users and/or other agencies; and
8. Verify and authorize GIS data from the project teams.



SECTOR: BUILDING & CONSTRUCTION

SUB-SECTOR 7/13: MECHANICAL & ELECTRICAL ENGINEERING





BUILDING AND CONSTRUCTION
MECHANICAL & ELECTRICAL ENGINEERING (CONSULTANCY)
LEVEL 2
M & E TECHNICIAN

Job Definition:

M&E Technician is responsible for testing or modifying developmental or operational electrical/mechanical machinery, control equipment and circuitry in industrial or commercial plants or laboratories. Usually work under direction of supervisor/M&E engineers.

Job Description:

1. Carry out and operate test equipment to evaluate performance of developmental parts, assemblies, or systems under simulated operating conditions, and record results;
2. To assemble electrical, electronic systems and prototypes according to engineering data and knowledge of electrical principles, using hand tools and measuring instruments under general supervision;
3. Provide technical assistance and resolution when electrical/mechanical problem arises;
4. To check existing electrical/mechanical engineering criteria to identify necessary revisions, deletions, or amendments to outdated material;
5. To assist the electrical/mechanical engineers or other personnel to identify, define, or solve developmental simple problems;
6. Adhere to safety and security procedure;
7. Follow Standard Operating Procedure; and
8. To carry out such other duties that may be assigned from time to time.





BUILDING AND CONSTRUCTION
MECHANICAL & ELECTRICAL ENGINEERING (CONSULTANCY)
LEVEL 3
M & E CLERK OF WORK / SUPERVISOR

Job Definition:

Clerk of Works is a person under the general direction of designated manager to assist, coordinate and monitor the administrative duties for the respected department.

Job Description:

1. Coordinate, monitor, compensation & benefits, training and development, employee relations, recruitment and selection; termination and resignation of employee;
2. To perform, oversee department functions and manage employees;
3. Approve leave and overtime; complete or review and sign time sheets;
4. If applicable, establish and manage a budget; approve expenditures; initiate and sign appropriate paperwork as per directed;
5. Maintain files, documents, reports and daily log for staffs/manager as required;
6. Attend all meetings as representative of the department;
7. Receive, record, present documents and reports for Resident Engineer/M&E Engineer approval, and maintain custody of documents submitted;
8. Adhere to safety and security procedure;
9. Follow Standard Operating Procedure; and
10. To carry out such other duties that may be assigned from time to time.





BUILDING AND CONSTRUCTION
MECHANICAL & ELECTRICAL ENGINEERING (CONSULTANCY)
LEVEL 4
M&E ENGINEER

Job Definition:

The M&E Engineer is designated to work closely with consultants and other staff to coordinate project design and development, perform design and provide quality assurance monitoring on contracted Highway, Bridge and Building related projects.

Job Description:

1. Create and hand out schedules for construction staff working in the field;
2. Perform field quality control observations and assessments;
3. Inspect and assess the quality of materials being used for construction projects;
4. Calculate, verify and approve invoices/quantity of material, supplies and equipment needed and purchases for each individual project;
5. Oversee the work of field staff to ensure efficacy of work procedures;
6. Ensure that all construction activities are being carried out according to compliance, safety rules and standard operating procedure;
7. Ensure availability of resources and materials at all times;
8. Provide recommendations for repair work and make sure that deadlines are compiled;
9. Perform continuous evaluation on trends and ensure that preventative maintenance is managed at each stage of the project;
10. Determine project feasibility and direct all resources to the site in a time efficient manner;



11. Provide technical advice to field staff in order to ensure that construction procedures are being carried out properly;
12. Identify construction constraints and plan and carry out measures to counter them; and
13. Prepare period reports and assessments for each project phase





BUILDING AND CONSTRUCTION
MECHANICAL & ELECTRICAL ENGINEERING (CONSULTANCY)
LEVEL 5
RESIDENT ENGINEER

Job Definition:

Resident Engineers is the person who is responsible to produce specifications for, design, develop, manufacture and install new or modified mechanical/ electrical components or systems.

Job Description:

1. Assess project requirements;
2. Approve budgets, timescales and specifications with clients and managers;
3. Liaise with suppliers, inter-related department and local authorities;
4. Undertake relevant research, produce and implement designs and test procedures;
5. Measure performance of mechanical components, devices and engines;
6. Test, evaluate, modify and re-test products;
7. Write reports and documentation;
8. Provide technical advice;
9. Analyse and interpret data; and
10. Lead the team member under his/her supervision.





BUILDING AND CONSTRUCTION
MECHANICAL & ELECTRICAL ENGINEERING (CONSULTANCY)
LEVEL 3
M & E DRAUGHTSMAN / TECHNICAL CAD

Job Definition:

Draughtsman/Technical CAD is responsible to prepare submission drawings, perform alteration and extension drawings, conduct project study, perform scaled drawings, plans, elevations and section drawings using AutoCAD software or traditional drafting methods.

Job Description:

1. Assist design products with engineering and manufacturing techniques;
2. Add details to architectural plans from their knowledge of building techniques;
3. Work from rough sketches and specifications created by engineers and architects;
4. Specify dimensions, materials, and procedures for new products;
5. Prepare multiple versions of designs for review by engineers and architects;
6. Design plans using computer-aided design and drafting (CAD) software under the supervision of engineers or architects;
7. Produce draft designs and diagrams according to the given specifications;
8. Collaborate with designers, constructors and engineers on projects;
9. Calculate dimensions and allowances with accurate precision, compile data and specifications sheets;
10. Revise drawings and layouts to accommodate changes and enhancements;
11. Accommodate safety procedures and issues in installation and construction drawings; and
12. To carry out such other duties that may be assigned from time to time.





BUILDING AND CONSTRUCTION
MECHANICAL & ELECTRICAL ENGINEERING (CONSULTANCY)
LEVEL 4
DESIGN ENGINEER

Job Definition:

Design Engineer is responsible to carry out research and develop ideas for new products and the systems used to make them. They also work to improve the performance and efficiency of existing products.

Job Description:

1. To design and develop new products as required and to project manage through to completion;
2. To design and develop enhancements to the existing product range;
3. To support other departments where required on issues of a technical nature;
4. Provide technical support for customers, which may involve site visits of both a national and international nature;
5. The production of, and maintenance of technical documentation as required , including CAD drawings, costing data, technical construction files, design calculations, bills of materials, technical specifications, marketing literature, test data;
6. To ensure that products meet all mandatory legislation;
7. Constant interrogation of product design to identify and implement cost savings and performance improvement; and
8. To assist the Engineering Team Leaders as required.





BUILDING AND CONSTRUCTION
MECHANICAL & ELECTRICAL ENGINEERING (CONSULTANCY)
LEVEL 5
SENIOR ENGINEER

Job Definition:

Senior Engineer is responsible to produce specifications for; design, develop, manufacture and install new or modified mechanical/ electrical components or systems.

Job Description:

1. Assess project requirements;
2. Approve budgets, timescales and specifications with clients and managers;
3. Liaise with suppliers, inter-related department and local authorities;
4. Undertake relevant research, produce and implement designs and test procedures;
5. Measure performance of mechanical components, devices and engines;
6. Test, evaluate, modify and re-test products;
7. Write reports and documentation;
8. Provide technical advice;
9. Analyse and interpret data; and
10. Lead the team member under his/her supervision.





BUILDING AND CONSTRUCTION
MECHANICAL & ELECTRICAL ENGINEERING (MECHANICAL)
HVAC, PLUMBING, INFRASTRUCTURE AND FIRE PROTECTION
LEVEL 2
MECHANICAL TECHNICIAN

Job Definition:

A Mechanical Technician is a person who is responsible to check HVAC, plumbing, infrastructure and fire protection condition, carry out HVAC, plumbing, infrastructure and fire protection maintenance and replace/repair HVAC, plumbing, mechanical services (lift, escalator, boiler, and compressor) and fire protection according to work standard and specification.

Job Description:

1. Identify HVAC, plumbing, infrastructure and fire protection specification;
2. Check HVAC, plumbing, infrastructure and fire protection condition;
3. Carry out HVAC, plumbing, infrastructure and fire protection maintenance;
4. Replace HVAC, plumbing, infrastructure and fire protection component; and
5. Repair HVAC, plumbing, infrastructure and fire protection component.





BUILDING AND CONSTRUCTION
MECHANICAL & ELECTRICAL ENGINEERING (MECHANICAL)
HVAC, PLUMBING, INFRASTRUCTURE AND FIRE PROTECTION
LEVEL 3
MECHANICAL SUPERVISOR

Job Definition:

A Mechanical Supervisor is a person who is responsible to check incoming material through buyer invoice specification, ensure material in accordance with specification, collect sample as per submission, conduct joint measurement with other relevant party, attend site me conduct joint measurement with other relevant party budgeting, record daily in site diary, verify all job done daily, jointly take photograph of work progress, record daily rainfall/weather condition and implement jointly supervisor activity.

Job Description:

1. Check incoming material through buyer invoice specification;
2. Ensure material in accordance with specification;
3. Collect sample as per submission;
4. Conduct joint measurement with other relevant party;
5. Attend site me conduct joint measurement with other relevant party budgeting;
6. Record daily in site diary;
7. Jointly take photograph of work progress;
8. Record daily rainfall/ weather condition;
9. Carry out joint inspection with all authorities personal; and
10. Inspect daily work in accordance with work programmed.





BUILDING AND CONSTRUCTION
MECHANICAL & ELECTRICAL ENGINEERING (MECHANICAL)
HVAC, PLUMBING, INFRASTRUCTURE AND FIRE PROTECTION
LEVEL 4
MECHANICAL ENGINEER

Job Definition:

A Mechanical Engineer is a person who is responsible to analyse and interpret construction drawing, specification of workmanship, material, equipment and tools, attend site coordination management and technical coordination, liaise with authorities, prepare and submit progress report to superior and check the accuracy of progress claim.

Job Description:

1. Analyse and interpret construction drawing;
2. Identify specification of workmanship;
3. Identify specification of material, equipment and tools;
4. Attend site coordination management;
5. Attend technical coordination;
6. Liaise with authorities;
7. Prepare and submit progress report to superior; and
8. Check the accuracy of progress claim.





BUILDING AND CONSTRUCTION
MECHANICAL & ELECTRICAL ENGINEERING (MECHANICAL)
HVAC, PLUMBING, INFRASTRUCTURE AND FIRE PROTECTION
LEVEL 5
MECHANICAL MANAGER

Job Definition:

A Mechanical Manager is a person who is responsible to manage the overall construction projects including construction drawings, project progress, testing and commissioning, evaluation of reports, consultation and technical coordination meetings.

Job Description:

1. Acknowledge receive certified construction drawings and work progress;
2. Approve completed works;
3. Approve method of statement;
4. Approve material equipment samples;
5. Issue job order;
6. Issue job order factories;
7. Visit and approve manufacturers;
8. Coordinate with civil engineering, management and organizations;
9. Jointly inspect with Fire Department and local authorities;
10. Certify installation, testing and commissioning;
11. Evaluate/ analyses reports consultation drawing;
12. Attend management meeting;
13. Attend site meeting;



14. Approve and submit variation order (VO);
15. Approve and submit progress claim;
16. Attend technical coordination meeting; and
17. Approve certificate of practical completion (CPC), RE and RA.





BUILDING AND CONSTRUCTION
MECHANICAL & ELECTRICAL ENGINEERING (ELECTRICAL)
HVAC, PLUMBING, INFRASTRUCTURE AND FIRE PROTECTION
LEVEL 2
ELECTRICAL TECHNICIAN

Job Definition:

An Electrical Technician is a person who is responsible to check HVAC, plumbing, infrastructure and fire protection wiring condition, carry out HVAC, plumbing, infrastructure and fire protection maintenance and replace/repair HVAC, plumbing, infrastructure and fire protection wiring according to work standard and specification.

Job Description:

1. Identify HVAC, plumbing, infrastructure and fire protection specification;
2. Check HVAC, plumbing, infrastructure and fire protection condition;
3. Carry out HVAC, plumbing, infrastructure and fire protection maintenance;
4. Replace HVAC, plumbing, infrastructure and fire protection wiring;
5. Repair HVAC, plumbing, infrastructure and fire protection wiring; and
6. Install new HVAC, plumbing, infrastructure and fire protection wiring.





BUILDING AND CONSTRUCTION
MECHANICAL & ELECTRICAL ENGINEERING (ELECTRICAL)
HVAC, PLUMBING, INFRASTRUCTURE AND FIRE PROTECTION
LEVEL 3
ELECTRICAL SUPERVISOR

Job Definition:

An Electrical Supervisor is a person who is responsible to lead, motivate, monitor and oversee a team of electricians to ensure they produce quality work. They provide technical guidance regarding the installation, maintenance and repair of electrical systems.

Job Description:

1. Prepare work schedules;
2. Assign work and training employees;
3. Motivate electricians to increase their productivity and meet work goals;
4. Ensure proper maintenance of equipment, compliance with electrical codes and adherence to safety regulations;
5. Provide assistance with electrical system installation, troubleshooting and repair as needed;
6. Design electrical systems and circuits, as well as contributing to improved designs and manufacturing processes;
7. Perform supervisory functions such as coordinate purchase of supplies, ensure adequate inventory, plan budgets, prioritize purchases, prepare cost estimates and document purchases. keep records of electrical operations, payrolls and timesheets; and
8. Participate in hiring, firing and evaluating employees.





BUILDING AND CONSTRUCTION
MECHANICAL & ELECTRICAL ENGINEERING (ELECTRICAL)
HVAC, PLUMBING, INFRASTRUCTURE AND FIRE PROTECTION
LEVEL 4
ELECTRICAL ENGINEER

Job Definition:

An Electrical Engineer is a person who is responsible to implement electrical components into any number of devices that use electricity. They help to design and manufacture electrical products of all shapes and sizes, making it a career constantly on the cutting edge. Electrical engineers frequently work with computers; many of these professionals also work in team settings. While there is overlap with electronics areas, electrical engineers generally focus on supply and generation of power.

Job Description:

1. Identifying customer requirements;
2. Designing systems and products;
3. Reading design specifications and technical drawings;
4. Researching suitable solutions and estimating costs and timescales;
5. Making models and prototypes of products using three-dimensional design software;
6. Working to British (BS), European (EN) and other standards;
7. Liaising with others in the design team;
8. Communicating with clients and contractors;
9. Attending meetings on site;



10. Designing and conducting tests;
11. Recording, analysing and interpreting test data;
12. Proposing modifications and retesting products;
13. Qualifying the final product or system;
14. Servicing and maintaining equipment;
15. Preparing product documentation, writing reports and giving presentations; and
16. Monitoring a product in use to improve on future design.





BUILDING AND CONSTRUCTION
MECHANICAL & ELECTRICAL ENGINEERING (ELECTRICAL)
HVAC, PLUMBING, INFRASTRUCTURE AND FIRE PROTECTION
LEVEL 5
ELECTRICAL MANAGER

Job Definition:

An Electrical Engineering Manager is a person who is responsible to accomplish electrical engineering human resource objectives by recruiting, selecting, orienting, training, assigning, scheduling, coaching, counselling, and disciplining employees; communicating job expectations; planning, monitoring, appraising, and reviewing job contributions; planning and reviewing compensation actions; enforcing policies and procedures.

Job Description:

1. Provide electrical engineering information and recommendations to strategic plans and reviews; preparing and completing action plans; implementing production, productivity, quality, and customer-service standards; resolving problems; completing audits; identifying trends; determining administrative system improvements; implementing change;
2. Forecast electrical engineering requirements; preparing an annual budget; scheduling expenditures; analysing variances; initiating corrective actions;
3. Develop strategic electrical plans by studying operational plans; studying existing conditions; determining needs to accomplish operational plans; mapping solutions; updating and modifying requirements and solutions; preparing cost estimates and budgets;



4. Plan electrical projects by determining specifications; selecting contractors; establishing installation schedules; planning shut-downs and installations; integrating requirements with architectural and mechanical designs; verifying code requirements; updating cost estimates;
5. Complete electrical projects by supervising installations; resolving design issues;
6. Maintain electrical systems by establishing and enforcing preventive and on-going maintenance, and testing programs; scheduling repairs; coordinating shut-downs and installations;
7. Maintain safe and healthy work environment by establishing, following, and enforcing standards and procedures; complying with codes and legal regulations;
8. Update job knowledge by remaining current on codes and requirements; participating in educational opportunities; reading professional publications; maintaining personal networks; participating in professional organizations; and
9. Accomplish engineering and organization mission by completing related results as needed.



SECTOR: BUILDING & CONSTRUCTION

SUB-SECTOR 8/13: LANDSCAPE ARCHITECTURE





BUILDING AND CONSTRUCTION
LANDSCAPE ARCHITECTURE
(CONSULTANCY)
LEVEL 2
TECHNICIAN

Job Definition:

Technician is designated as construction drafters that make sure that both the designs of landscape architects and the calculations of building engineers are combined into an effective building guideline. Technician is responsible for technical data, such as material lengths, amounts, and weights within a completed design. These variables are often made available by surveyors and other supervisor/architect.

Job Description:

1. Create design plans for clients, including drawings, computer images, and models with general supervision;
2. Draw simple blueprints for landscaping crew;
3. To monitor landscapes, ensure the site is safe and work execution and the crews are following the design as per directed by upper level supervisor;
4. Adhere to safety and security procedure;
5. Follow Standard Operating Procedure; and
6. To carry out such other duties that may be assigned from time to time.





BUILDING AND CONSTRUCTION

LANDSCAPE ARCHITECTURE

(CONSULTANCY)

LEVEL 3

CLERK OF WORK

Job Definition:

Clerk of Work is a person who is responsible to monitor and regulate employees in their performance of assigned or delegated tasks. Supervisors are usually authorized to recommend and/or effect hiring, disciplining, promoting, punishing, rewarding, and other associated activities regarding the employees in their departments.

Job Descriptions:

1. Prepare method of statement;
2. Understand and interpret work instruction;
3. Supervise work duty;
4. Prepared work report;
5. Carry out site inspection;
6. Liaise with authorized representatives;
7. Adhere to safety and security procedure; and
8. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
LANDSCAPE ARCHITECTURE
(CONSULTANCY)
LEVEL 4
ASSISTANT LANDSCAPE ARCHITECT

Job Definitions:

Assistant Landscape Architect is a person who is responsible to assist in/conduct/manage complex and diverse design functions under general supervision or general direction; prepare and coordinate plans and make presentations on projects to various groups; may oversee and review the work of staff and volunteers. The Assistant Landscape Architect is not authorized to sign off on architectural specifications and plans in accordance with State law.

Job Description:

1. Prepare landscape architectural contract drawings, specifications and estimates of quantities;
2. Investigate and propose solutions to problems of grading, spatial organization and site utilization;
3. Examine consultant contract drawings, specifications and construction estimates, and submit reports;
4. Develop landscaping maps and data for existing conditions and for new or proposed additions or changes;
5. Assess and monitor progress of construction by reviewing and approving shop drawings and resolving design conflicts;



6. Work with Resident Landscape Engineers, Arboriculture and Horticulture specialists to ensure high standards of horticulture operations as well as preservation and protection of trees, direct proper installation and pruning of trees; hand select and tag quality plant materials at nurseries;
7. Monitor construction operations for compliance with contract specifications and documents; supervise site work performed in critical root zones of existing trees and other relevant/necessary aspects of tree preservation and landscape work during construction;
8. Conduct site inspections for quality assurance;
9. Monitor claims and materials, work done.





BUILDING AND CONSTRUCTION
LANDSCAPE ARCHITECTURE
(CONSULTANCY)
LEVEL 5
RESIDENT LANDSCAPE ARCHITECT

Job Definitions:

Resident Landscape Architect is a person who is responsible to advise about, plan, design and oversee the development and construction of external land areas such as gardens, parks and recreational areas and residential, industrial and commercial sites.

Job Descriptions:

1. Survey sites;
2. Discuss requirements with clients;
3. Write reports; create plans, designs and drawings computer software;
4. Produce contracts and estimated costs;
5. Present proposals to clients for approval and agreeing time-scales;
6. Oversee projects as they progress;
7. Liaise with other professionals such as architects, surveyors, town planners and civil engineers;
8. Monitor project costing and payment;
9. Provide technical advice if necessary;
10. Analyse and interpret data;
11. Lead the team member under his/her supervision.





BUILDING AND CONSTRUCTION
LANDSCAPE ARCHITECTURE (CONSULTANCY)
LEVEL 3
DRAUGHTSMAN/TECHNICAL CAD

Job Definition:

Draughtsman/Technical CAD is a person who is responsible to prepare submission drawings, perform alteration and extension drawings, conduct project study, perform scaled drawings, perform plans, elevations and section drawings using AutoCAD software or traditional drafting methods and follow standard operating procedure.

Job Description:

1. Assist design products with engineering and manufacturing techniques;
2. Add details to architectural plans from their knowledge of building techniques;
3. Work from rough sketches and specifications created by engineers and architects;
4. Specify dimensions, materials, and procedures for new products;
5. Prepare multiple versions of designs for review by engineers and architects;
6. Design plans using computer-aided design and drafting (CAD) software under the supervision of engineers or architects;
7. Produce draft designs and diagrams according to the given specifications;
8. Collaborate with designers, constructors and engineers on projects;
9. Calculate dimensions and allowances with accurate precision, compile data and specifications sheets;
10. Revise drawings and layouts to accommodate changes and enhancements; and
11. Accommodate safety procedures and issues in installation and construction drawings.





BUILDING AND CONSTRUCTION

LANDSCAPE ARCHITECTURE

(CONSULTANCY)

LEVEL 4

LANDSCAPE DESIGNER

Job Definition:

Landscape Designer is designated to appreciate and understand the merging of art and science into a display of beauty that melds the buildings and technology with nature.

Job Description:

1. Using creativity and the beauty of nature to create a harmonious, aesthetically please and functional area. Areas of responsible include personal lawns, parks, highways, walkways and more;
2. Plan the finished product; tie in new features with current ones, by sketch it to scale with details;
3. Perform site analyses that include the assessment of current plants, soil conditions, lighting, the view, and architecture style of the house;
4. Communicate both with clients and other inter-related workers on the landscape team;
5. Research topics such as plants and their ability to survive in an area, guidelines and codes;
6. Make public presentations when necessary to discuss the project, complete with charts, sketches, and so forth;
7. Review plans, proposed changes, and any other necessary documents;
8. Oversees progression of the project to ensure that it is going as planned; and
9. Keep records, include everything from correspondence to reports.





BUILDING AND CONSTRUCTION
LANDSCAPE ARCHITECTURE
(CONSULTANCY)
LEVEL 5
PRINCIPAL LANDSCAPE ARCHITECT

Job Definition:

Principal Landscape Architects is designated to advise about plan, design and oversee the development and construction of external land areas such as gardens, parks and recreational areas and residential, industrial and commercial sites.

Job Description:

1. Provide technical input to projects;
2. Build relationships with clients;
3. Assist with business development initiatives;
4. Co-coordinate and write expressions of interest, fee proposals and bids;
5. Manage projects and act for sub-project;
6. Work in collaboration with other staff and organizations;
7. Provide input to projects and company initiatives, lead by example to achieve company goals and champion quality & innovation; and
8. Manage, motivate, assist and participate in develop team members to their full potential.



SECTOR: BUILDING & CONSTRUCTION

SUB-SECTOR 9/13: SAFETY HEALTH & ENVIRONMENT





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSULTANCY)
LEVEL 2
SITE SAFETY PROMOTER

Job Definition:

Site Safety Promoter is responsible to promote the safety to the worker by providing the safety measurement and equipment.

Job Description:

1. Carry out gas monitoring of vessels, issue of various permits-to-work and identification of unsafe acts, unsafe conditions both on board vessels and in workshops with supervision SS Supervisor;
2. Carry out schedule firefighting and rescue operations drill from time to time;
3. To assist SS Supervisor to encourage team members to develop ideas for improvements in operation that may contribute to improve Safety, Health & Environmental Programme;
4. To ensure all report of accidents/ incidents documented and filed and investigate it in accordance of standard operating procedure and company compliance and submitted to the supervisor;
5. Ensure that the workers are provided with the required Personal Protective Equipment and the workers use them in the proper way;
6. Adhere to safety and security procedure; and
7. Follow standard operating procedure.





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSULTANCY)
LEVEL 3
SITE SAFETY SUPERVISOR

Job Definition:

Site Safety Supervisor is responsible for implementing the RES Safety Management System on their project under direction of Safety Officer/Environmental Officer/Manager

Job Description:

1. Monitor safety performance of the project and ensure company procedures and regulatory requirements are met and exceeded;
2. Maintain and develop the safety program file for each project;
3. Ensure that suitable risk assessments are developed for all operations;
4. Facilitate prompt close-out of all corrective action plans;
5. Complete site safety orientation for all new hires;
6. Assist the accident and near miss investigations. Confirm the reports of accidents and near misses are documented and recorded accordingly to the RES accident prevention and report program;
7. Take minutes at the weekly safety meeting; lead site safety meetings as needed;
8. Hazard identification related to site work for RES staff, subcontractors, or the general public;
9. Immediately stop any work where there is an imminent danger;
10. Coordinate matters of safety, health and welfare to all levels of management;
11. Produce safety reports as required by the Safety/Project Manager;
12. Maintain the required RES and regulatory postings on site;
13. Ensure that sufficient protective clothing and equipment is available and used as necessary.





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSULTANCY)
LEVEL 4
SAFETY OFFICER/ ENVIRONMENTAL OFFICER (EO)

Job Definition:

Safety Officer /Environment Officer are in charge of running environmental issues that range from advocacy, awareness and event organize to draft environmental policies. The officer also ensures that environmental policies are well implemented and any environmental campaigns are effective. The general job of an environmental officer entails evaluate, plan and implement environmental issues.

Job Description:

1. Assess environmental projects on the ground.;
2. Evaluate the performance of projects and public awareness levels;
3. Monitor performance of staff on the ground;
4. Identify and plan environmental related activities;
5. Analyse environmental matters and write reports;
6. Carry out impact assessment for environment awareness projects;
7. Mainstream environmental matters;
8. Liaises with the government, donors and other organizations with similar interests;
9. Secure funding to sustain environmental projects and activities;
10. Writes the budget and ensures that funds are allocated appropriately to respective projects.





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSULTANCY)
LEVEL 5
SAFETY MANAGER

Job Definition:

Safety Manager is designated to lead the management, to ensure compliance with safety and environmental procedures and to assist in the achievement of profitability/productivity requirements.

Job Description:

1. Assign, plans and implements safety policies and procedures in compliance with local, state and federal authorities;
2. Implement rules and regulations in the management and includes the Occupational Safety and Health Administration (OSHA);
3. Advises subordinates on safety compliance concerns and preventative actions;
4. Plans and implements training for employees in work site safety practices;
5. Maintains safety files and records;
6. Performs safety surveys and inspections, prepares written reports of findings and recommendations for corrective or preventive measures where indicated and follows up to ensure measures have been implemented;
7. Conducts post-accident investigation and prepares report to identify possible accident causes and hazards as reference to company personnel and senior management;
8. Assist, setup and conducts training; and
9. Assists in the development, evaluation and upgrading of safety programs.





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSULTANCY)
LEVEL 2
TRAFFIC WORKER

Job Definition:

Traffic Worker is designated to perform the marking of traffic control lines, crosswalks, safety zones, directional signs and similar traffic indicators; does related work as required.

Job Description:

1. Maintain traffic control systems; paint and stripe city streets, curbs, crosswalks and guardrails; install permanent markers and reflectors along streets and highways;
2. Prepare, install, repair and replace City signs and posts; install and maintain street banners as necessary;
3. Maintain inventory of traffic materials including signs, paint and sand;
4. Mix, rake and spread asphalt; seal cracks and patch streets; participate in street overlays.
5. Install speed bumps on City streets;
6. Respond to emergency calls to remove traffic accident debris from City streets;
7. Operate street maintenance equipment including backhoe, concrete saw, soil compactor and dump truck;
8. Construct forms; pour and finish concrete on curbs, gutters, sidewalks, and waterways; perform concrete repairs, patch work, brick, block walls, and associated masonry work;
9. Clean and maintain storm drains, pipes, catch basins and storm channels; and
10. Perform walk-through inspections of storms drains; ensure proper working order; make repairs as necessary.





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSULTANCY)
LEVEL 3
TRAFFIC MANAGEMENT OFFICER (TMO) ASSISTANT / ENVIRONMENTAL OFFICER (EO)
ASSISTANT

Job Definition:

TMO Assistant/EO Assistant is designated to provide administrative support and assistance during the execution of program for broadcasting television or radio materials. TMO Assistants/EO Assistant is required to handle more than one thing at once and the capacity to meet deadlines.

Job Description:

1. Assist traffic management personnel to perform daily activities
2. Monitor broadcasts and schedule advertisements and commercials;
3. Establish and maintain positive relationships with clients, vendors and ads agencies members;
4. Ensure proper circulation of information;
5. Maintain file records for each broadcasted material;
6. Handle and coordinate correspondence and inbound calls;
7. Archive documents and broadcasting materials;
8. Use media equipment to fulfill job duties;
9. Provide technical support when necessary;
10. Assist traffic manager in preparing projects in order to edit and design new materials;
11. Gather accurate information in order to prepare project;



12. Adhere to safety and security procedure; and
13. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSULTANCY)
LEVEL 4
TRAFFIC MANAGEMENT OFFICER (TMO)

Job Definition:

Traffic Management Officer is responsible for the provision of traffic management, road safety and new roads & street works services.

Job Description:

1. Investigate, design, prepare of cost estimates and implementation of Traffic Management;
2. Prepare, estimate and issue traffic management work instructions/supervision to internal and external worker as required;
3. Verification of valuations from workers and report on variations of task and matters relating to financial aspects of projects;
4. Investigate, prepare and implement Traffic Regulation Orders in accordance with statutory procedures. Review and revise existing Orders as required;
5. Prepare reports, drawings and technical information in accordance with guidance and legislation;
6. To keep fully conversant with current legislation in matters relating to all traffic management activities;
7. Monitor contracts for supply and maintenance of equipment including traffic signals, parking ticket machines and variable message signs;
8. Investigate and respond to public enquiries and complaints relating to the function;



9. Prepare reports, arrange and attend public meetings and exhibitions as required and carry out all aspects of public consultation;
10. Carry out traffic surveys including speed measurements and vehicle and pedestrian counts;
11. Represent the Council at internal and external meetings as required and on matters relating to Traffic Management;
12. Provide traffic management advice to external and internal bodies;
13. Participate in the development and review of processes and procedures that conform; and
14. Any other duties and assignments appropriate to the grading of the post.





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSTRUCTION)
LEVEL 2
SITE SAFETY PROMOTER

Job Definition:

A Site Safety Promoter is responsible to promoting the safety to the worker by providing the safety measurement and equipment.

Job Description:

1. Carry out project monitoring, issue of various permits-to-work and identification of unsafe acts, unsafe conditions both on board vessels and in workshops with supervision SS Supervisor;
2. Carry out schedule firefighting and rescue operations drill from time to time;
3. To assist SS Supervisor to encourage team members to develop ideas for improvements in operation that may contribute to improve Safety, Health & Environmental Programme;
4. To ensure all report of accidents/ incidents documented and filed and investigate it in accordance of standard operating procedure and company compliance and submitted to the supervisor;
5. Ensure that the workers are provided with the required Personal Protective Equipment and the workers use them in the proper way;
6. Adhere to safety and security procedure; and
7. Follow standard operating procedure.





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSTRUCTION)
LEVEL 3
SITE SAFETY & HEALTH SUPERVISOR

Job Definition:

A Construction Site Safety and Health Supervisor is designated to perform supervisory function, organise safety and health programme, briefing on chemical hazards, briefing on physical hazards, briefing on ergonomic hazard and coordinate emergency response plan.

Job Description:

1. Perform supervisory function;
2. Organise safety and health programme;
3. Organise briefing on chemical hazards;
4. Organise briefing on physical hazards;
5. Organise briefing on ergonomic hazard;
6. Coordinate emergency response plan;
7. Adhere to safety and security procedure; and
8. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION

SAFETY, HEALTH AND ENVIRONMENT (CONSTRUCTION)

LEVEL 4

SAFETY OFFICER / ENVIRONMENT OFFICER

Job Definition :

A Safety Officer /Environment Officer is designated to run environmental issues that range from advocacy, awareness and event organize to draft environmental policies. The officer also ensures that environmental policies are well implemented and any environmental campaigns are effective. The general job of an environmental officer entails evaluate, plan and implement environmental issues.

Job Description:

1. Assess environmental projects on the ground;
2. Evaluate the performance of projects and public awareness levels;
3. Monitor performance of staff on the ground;
4. Identify and plan environmental related activities;
5. Analyse environmental matters and write reports;
6. Carry out impact assessment for environment awareness projects;
7. Mainstream environmental matters;
8. Liaises with the government, donors and other organizations with similar interests;
9. Secure funding to sustain environmental projects and activities; and
10. Writes the budget and ensures that funds are allocated appropriately to respective projects.





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSTRUCTION)
LEVEL 1
TRAFFIC SIGNALMAN

Job Definition:

A Traffic Signalman is designated to perform traffic signage, tool and equipment setup, perform traffic signage material servicing, perform working area housekeeping and perform safety, health & environment rules and regulation adherence.

Job Description:

1. Clean lenses of lamps with cloths and solvents;
2. Carry out pre-operational inspection and daily service;
3. Tighten loose bolts, using wrenches, and test connections of traffic signage, tool and equipment;
4. Inspect the maintenance and storage of rigging equipment;
5. Set up traffic signage, tools and material;
6. Control road user movements;
7. Clean working area; and
8. Adhere to motorist, pedestrian and worker safety in temporary traffic control zones.





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSTRUCTION)
LEVEL 2
TRAFFIC WORKER

Job Definition:

A Traffic Worker is designated to perform traffic control, perform traffic route planning, perform tools and equipment maintenance and perform safety, health & environment rules and regulation adherence.

Job Description:

1. Direct traffic to protect the safety of the work crew;
2. Monitor the actions of motoring and pedestrian traffic for their safety and the safety of the work crew;
3. Carry out all traffic sites control;
4. Carry out escape route planning;
5. Monitor workstation security and safety;
6. Keep signs clean and in good condition;
7. Remove or cover signs when not in use;
8. Check signage are in place.
9. Install, inspect, test, maintain, or signals, signal equipment, or intercommunications systems within a road system;
10. Adhere to safety and security procedure while operating in work area; and
11. Adhere to motorist, pedestrian and worker safety in temporary traffic control zones;





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSTRUCTION)
LEVEL 3
TMO ASSISTANT

Job Definition:

A TMO Assistant is designated to perform traffic control supervision, perform traffic control manpower scheduling, verify traffic route proposal, perform supervisory functions; perform safety, health & environment rules and regulation adherence.

Job Description:

1. Monitor traffic condition and movement;
2. Guide motoring and pedestrian traffic for their safety;
3. Decide on escape route;
4. Monitor workstation security and safety;
5. Allocate signage strategic location;
6. Check signage are in place.
7. Coordinate tools and equipment maintenance;
8. Adhere to safety and security procedure while operating in work area; and
9. Record and report information about mileage or track inspected, repairs performed, and equipment requiring replacement;





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSTRUCTION)
LEVEL 4
TRAFFIC MANAGEMENT OFFICER (TMO)

Job Definition:

A Traffic Management Officer (TMO) is designated to coordinate road safety services, coordinate road safety planning, and enforce standard operating procedure compliances.

Job Description:

1. Coordinate the operation of road safety education, training and publicity;
2. Coordinate the road safety plan promotion;
3. Coordinate traffic education programs;
4. Monitor safety of road users;
5. Advise on aspects of safe use of roads and vehicles;
6. Manage road safety manpower planning;
7. Analyse road safety planning performance;
8. Coordinate with the administration regarding stock control, banking of cash, equipment inventory and control of teaching resources;
9. Monitor the maintenance and storage of rigging equipment;
10. Adhere to safety and security procedure while operating in work area;
11. Enforce Standard Operating Procedure compliances; and
12. Perform managerial functions.





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSTRUCTION)
LEVEL 2
EO WORKER

Job Definition:

An EO Worker is designated to implement regulatory environmental standard at work place, monitor implementation of environmental and safety working practices, perform environmental compliance inspection, and perform ethical and professional behaviour in work place.

Job Description:

1. Ensure work area is compliance with regulatory environmental standards;
2. Monitor environmental and safety working practices among all staff members;
3. Monitor on-site waste collection;
4. Conduct sick building syndrome;
5. Maintain environment documentation to comply with regulatory regulation;
6. Carry out proper waste disposal;
7. Provide input into the administration of environment related issues;
8. Handle environment related issues; and
9. Adhere to safety rules and regulations.





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSTRUCTION)
LEVEL 3
EO ASSISTANT

Job Definition:

An EO Assistant is designated to supervise environmental concerns compliance, promote safe working practices, and display ethical and professional behaviour in working area.

Job Description:

1. Supervise HVAC environmental investigations and evaluation results;
2. Coordinate environmental documentation to compliance with regulatory requirement;
3. Develop environmental friendly planning and compliance;
4. Supervise scheduled waste disposal handling;
5. Serve as a resource person for environment related issues;
6. Display ethical and professional behaviour in working area;
7. Participate in environmental programs and meetings;
8. Supervise environmental staff while working on projects;
9. Oversee all aspects of waste collection, segregation, and proper packaging for disposal on site; and
10. Conduct supervisory function.





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSTRUCTION)
LEVEL 4
ENVIRONMENTAL OFFICER (EO)

Job Definition:

An Environment Officer is designated to in charge of running environmental issues that range from advocacy, awareness and event organize to draft environmental guidelines. The officer also ensures that environmental guidelines are well implemented and any environmental campaigns are effective. The general job of an environmental officer entails evaluate, plan and implement environmental issues.

Job Description:

1. Assess environmental projects on the ground;
2. Evaluate the performance of projects and public awareness levels;
3. Monitor performance of staff on the ground;
4. Identify and plan environmental related activities;
5. Analyse environmental matters and write reports;
6. Carry out impact assessment for environment awareness projects;
7. Mainstream environmental matters;
8. Liaises with the government, donors and other organizations with similar interests;
9. Secure funding to sustain environmental projects and activities; and
10. Writes the budget and ensures that funds are allocated appropriately to respective projects.





BUILDING AND CONSTRUCTION
SAFETY, HEALTH AND ENVIRONMENT (CONSTRUCTION)
LEVEL 5
SAFETY MANAGER

Job Definition:

A Safety Manager is designated to be leader of the management, to ensure compliance with safety and environmental procedures and to assist in the achievement of profitability/productivity requirements.

Job Description:

1. Assign, plans and implements safety policies and procedures in compliance with local, state and federal authorities;
2. Implement rules and regulations in the management and includes the Occupational Safety and Health Administration (OSHA);
3. Advises subordinates on safety compliance concerns and preventative actions;
4. Plans and implements training for employees in work site safety practices;
5. Maintains safety files and records;
6. Performs safety surveys and inspections, prepares written reports of findings and recommendations for corrective or preventive measures where indicated and follows up to ensure measures have been implemented; and
7. Conducts post-accident investigation and prepares report to identify possible accident causes and hazards as reference to company personnel and senior management.



SECTOR: BUILDING & CONSTRUCTION

SUB-SECTOR 10/13: INDUSTRIALIZED BUILDING SYSTEM





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 1
PRECAST MANUFACTURING OPERATOR

Job Definition:

Precast Manufacturing Operator is the person who is responsible to prepare precast component storage area, carry out installation works and to ensure effective and efficient precast concrete installation activities.

Job Description:

1. Follow work instruction and job requirement.
2. Prepare precast component storage area
3. Install fromwork
4. Perform quality control such as perform starter bar defect rectification and carry out precast component crack repair works to comply with precast component quality standard.
5. Able to carry out instruction by his/ her superior.
6. Able to abide by safety rules and regulations.
7. Operate a lift truck or crane to load their products such as bricks and precast concrete items and unload the goods also dealing with delivery paperwork.
8. Keep work areas as clean as possible to reduce the risk of accidents.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
PRECAST MANUFACTURING LINE TECHNICIAN

Job Definition:

Line Technician is the person who is responsible to perform and check installation of precast concrete building components using installation tools at job site as well as to ensure accurate and efficient precast concrete installation activities.

Job Description:

1. Follow work instruction and job requirement;
2. Set out precast component accurately;
3. Co-ordinate utilities set up, precast component storage, precast component delivery and installation tools;
4. Check precast component stock, precast component quality, precast component marking, work schedule, floor level, precast component alignment, starter bar defect, precast component works defect;
5. Carry out instruction by his/ her supervisor; and
6. Abide by safety rules and regulations.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 3
PRECAST MANUFACTURING SUPERVISOR

Job Definition:

Supervisor is the person who is responsible to arrange, prepare, conduct, check, supervise, coordinate, liaise, monitor and verify precast concrete installation activities and perform the assigned duties under senior supervisor/ site agent.

Job Description:

1. Supervise site utilities, lifting equipment arrangement, conduct installation method statement briefing during site mobilization;
2. Supervise precast component delivery, precast component stocking, precast component installation sequence, precast component installations;
3. Supervise sub-contractors work with an attitude of achieving accuracy and quality control.
4. Supervise site appointment and office procurement, daily work schedule and daily site report, works discipline;
5. Arrange precast component lifting, welding works, precast component delivery;
6. Prepare job alignment, personnel appraisal, duty roaster and daily site report;
7. Check manpower requirement, precast component orientation, precast component verticality, welding works;
8. Monitor work attendance;
9. Coordinate site meeting, section budgets, crane movement, achieve site document; and
10. Liaise with other trades/ team leader in the coordination of works.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 1
FORMWORK OPERATOR

Job Definition:

Formwork Operator is the person who is responsible to prepare prefabricate formwork component as required by the superior for an effective and efficient formwork system installation activities.

Job Description:

1. Follow work instruction and job requirement;
2. Prepare Formwork System storage area;
3. Assembly prefabricated formwork components;
4. Carry out formwork system crack repair works to comply with, formwork system quality standard;
5. Able to carry out instruction by his/ her superior; and
6. Able to abide by safety rules regulation.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
FORMWORK LINE TECHNICIAN

Job Definition:

Formwork Line Technician is the person who is responsible to perform monitoring of production of formwork component to suit the client design and requirement.

Job Description:

1. Follow work instruction and job requirement;
2. Set out formwork system accurately;
3. Co-ordinate utilities set up, formwork system storage, formwork system delivery and installation tools;
4. Arrange installation tools, lifting equipment, temporary propping and formwork system stocking;
5. Check formwork system stock, formwork system quality, formwork system marking, work schedule, floor level, formwork system alignment, starter bar defect, and formwork system works defect;
6. Verify levelling bolt/ pad level, temporary propping in accordance with shop drawings.
7. Carry out instruction by his/ her supervisor;
8. Abide by safety rules and regulations; and
9. Perform all duties in Level 1.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 3
FORMWORK SUPERVISOR

Job Definition:

Formwork Supervisor is designated to arrange, prepare, conduct, check, supervise, coordinate, liaise, monitor and verify formwork system installation activities and perform the assigned duties under senior supervisor/ site agent.

Job Description:

1. Supervise site utilities, lifting equipment arrangement, conduct installation method statement briefing during site mobilization;
2. Supervise formwork system delivery, formwork system stocking, formwork system installation sequence, formwork system installations;
3. Supervise site appointment and office procurement, daily work schedule and daily site report, works discipline;
4. Arrange formwork system lifting, welding works, formwork system delivery.
5. Prepare job alignment, personnel appraisal, duty roaster and daily site report;
6. Check manpower requirement, formwork system orientation, formwork system verticality, welding works;
7. Verify installation tools and equipment, formwork system setting out, starter bar rectification works, formwork system joint grouting, and formwork system repair work;
8. Monitor work attendance;



9. Coordinate site meeting, section budgets, crane movement, and archive site document;
and
10. Liaise with other trades/ team leader in the coordination of works.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 1
BLOCK WALL OPERATOR

Job Definition:

Block Wall Operator is the person who is responsible to perform the production of block wall.

Job Description:

1. Follow work instruction and job requirement;
2. Prepare block wall system storage area;
3. Install and prepare mould;
4. Carry out wet casting;
5. Perform site quality control;
6. Carry out block wall system crack repair works to comply with, block wall system quality standard;
7. Able to carry out instruction by his/ her superior; and
8. Able to abide by safety rules regulations.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
BLOCK WALL LINE TECHNICIAN

Job Definition:

Block Wall Line Technician is the person who is responsible to perform monitoring of production of block wall as per client requirement.

Job Description:

1. Follow work instruction and job requirement;
2. Co-ordinate utilities set up, block storage, block delivery and installation tools;
3. Arrange installation tools, lifting equipment and block stocking;
4. Check block stock, block quality , work schedule;
5. Verify levelling bolt/ pad level, temporary propping in accordance with shop drawings.
6. Carry out instruction by his/ her supervisor; and
7. Abide by safety rules and regulations.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 3
BLOCK WALL SUPERVISOR

Job Definition:

Block Wall Supervisor is the person who is responsible to arrange, prepare, conduct, check, supervise, coordinate, liaise, monitor and verify block wall system installation activities and perform the assigned duties under senior supervisor/ site agent.

Job Description:

1. Supervise site utilities, lifting equipment arrangement, conduct installation method statement briefing during site mobilization;
2. Supervise block wall system delivery, block wall system stocking, block wall system installation sequence, block wall system installations;
3. Supervise sub-contractors work with an attitude of achieving accuracy and quality control.
4. Supervise site appointment and office procurement, daily work schedule and daily site report, works discipline;
5. Arrange block wall system lifting, welding works, block wall system delivery;
6. Prepare job alignment, personnel appraisal, duty roaster and daily site report;
7. Check manpower requirement, block wall system orientation, and block wall system verticality, welding works;
8. Verify installation tools and equipment, block wall system setting out, starter bar rectification works, block wall system joint grouting, block wall system repair work;



9. Monitor work attendance;
10. Coordinate site meeting, section budgets, crane movement, achieve site document; and
11. Liaise with other trades/ team leader in the coordination of works.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 1
TIMBER (TRUSSES) OPERATOR

Job Definition:

Timber (Trusses) Operator is the person who is responsible to carry out manufacturing of timber framing works and to ensure effective and efficient timber frame system installation activities.

Job Description:

1. Follow work instruction and job requirement;
2. Prepare timber frame system storage area;
3. Perform cutting and assembly of timber framing components;
4. Perform site quality control;
5. Carry out timber frame system crack repair works to comply with, timber frame system quality standard;
6. Able to carry out instruction by his/ her superior; and
7. Able to abide by safety rules regulations.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
TIMBER (TRUSSES) LINE TECHNICIAN

Job Definition:

Timber (Trusses) Line Technician is the person who is responsible to perform and check installation of timber frame system building components using installation tools at job site as well as to ensure accurate and efficient timber frame system installation activities.

Job Description:

1. Follow work instruction and job requirement;
2. Set out timber frame system accurately;
3. Co-ordinate utilities set up, timber frame system storage, timber frame system delivery and installation tools;
4. Arrange installation tools, lifting equipment, temporary propping and timber frame system stocking;
5. Check timber frame system stock, timber frame system quality, timber frame system marking, work schedule, floor level, timber frame system alignment, starter bar defect, and timber frame system works defect;
6. Verify levelling bolt/ pad level, temporary propping in accordance with shop drawings;
7. Carry out instruction by his/ her supervisor; and
8. Abide by safety rules and regulations.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 3
TIMBER (TRUSSES) SUPERVISOR

Job Definition:

Timber (Trusses) Supervisor is the person who is responsible to arrange, prepare, conduct, check, supervise, coordinate, liaise, monitor and verify timber frame system installation activities and perform the assigned duties under senior supervisor/ site agent.

Job Description:

1. Supervise site utilities, lifting equipment arrangement, conduct installation method statement briefing during site mobilization;
2. Supervise timber frame system delivery, timber frame system stocking, timber frame system installation sequence, timber frame system installations;
3. Supervise sub-contractors work with an attitude of achieving accuracy and quality control;
4. Supervise site appointment and office procurement, daily work schedule and daily site report, works discipline;
5. Arrange timber frame system lifting, welding works, timber frame system delivery;
6. Prepare job alignment, personnel appraisal, duty roaster and daily site report;
7. Check manpower requirement, timber frame system orientation timber frame system verticality, and welding works;
8. Verify installation tools and equipment, timber frame system setting out, starter bar rectification works, timber frame system joint gruting, and timber frame system repair work;



9. Monitor work attendance;
10. Coordinate site meeting, section budgets, crane movement, achieve site document; and
11. Liaise with other trades/ team leader in the coordination of works.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 1
STEEL (TRUSSES) OPERATOR

Job Definition:

Steel (Trusses) Operator is the person who is responsible to prepare steel trusses system manufacturing work and to ensure effective and efficient steel trusses system installation activities. ssssssssssss

Job Description:

1. Follow work instruction and job requirement;
2. Prepare steel trusses system storage area in his/ her area of responsibility;
3. Carry out steel component manufacturing work;
4. Perform site quality control;
5. Carry out steel trusses system repair works to comply with, steel trusses system quality standard;
6. Able to carry out instruction by his/ her superior; and
7. Able to abide by safety rules regulations.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
STEEL (TRUSSES) LINE TECHNICIAN

Job Definition:

Steel (Trusses) Line Technician is the person who is responsible to perform and check installation of steel framework system building components using installation tools at job site as well as to ensure accurate and efficient steel trusses system installation activities.

Job Description:

1. Follow work instruction and job requirement;
2. Set out steel trusses system accurately;
3. Co-ordinate utilities set up, steel trusses system storage, steel trusses system delivery and installation tools;
4. Arrange installation tools, lifting equipment, temporary propping and steel trusses system stocking;
5. Check steel trusses system stock, steel trusses system quality, steel trusses system marking, work schedule, floor level, steel trusses system alignment, starter bar defect, steel trusses system works defect; and
6. Carry out instruction by his/ her supervisor.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 3
STEEL (TRUSSES) SUPERVISOR

Job Definition:

Steel (Trusses) Supervisor is the person who is responsible to arrange, prepare, conduct, check, supervise, coordinate, liaise, monitor and verify steel trusses system installation activities and perform the assigned duties under senior supervisor/ site agent.

Job Description:

1. Supervise site utilities, lifting equipment arrangement, conduct installation method statement briefing during site mobilization;
2. Supervise steel trusses system delivery, steel trusses system stocking, steel trusses system installation sequence, steel trusses system installations;
3. Supervise sub-contractors work with an attitude of achieving accuracy and quality control.
4. Supervise site appointment and office procurement, daily work schedule and daily site report, works discipline;
5. Arrange steel trusses system lifting, welding works, steel trusses system delivery;
6. Prepare job alignment, personnel appraisal, duty roaster and daily site report;
7. Check manpower requirement, steel trusses system orientation steel trusses system verticality, welding works;
8. Verify installation tools and equipment, steel trusses system setting out, starter bar rectification works, steel trusses system joint grouting, steel trusses system repair work;
9. Monitor work attendance
10. Coordinate site meeting, section budgets, crane movement, archive site document; and
11. Liaise with other trades/ team leader in the coordination of works.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 1
STEEL (FRAMING) OPERATOR

Job Definition:

Steel (Framing) Operator is the person who is responsible to perform steel frame component production, storage area, carry out installation works and to ensure effective and efficient steel framework system installation activities.

Job Description:

1. Follow work instruction and job requirement;
2. Prepare steel framework system storage;
3. Carry out production of steel framing;
4. Carry out steel framing component assembly;
5. Perform site quality control;
6. Carry out steel framework system crack repair works to comply with, steel framework system quality standard; and
7. Able to abide by safety rules regulations.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
STEEL (FRAMING) LINE TECHNICIAN

Job Definition:

Steel (Framing) Line Technician is the person who is responsible to perform and check installation of steel framework system building components using installation tools at job site as well as to ensure accurate and efficient steel framework system installation activities.

Job Description:

1. Follow work instruction and job requirement;
2. Set out steel framework system accurately;
3. Co-ordinate utilities set up, steel framework system storage, steel framework system delivery and installation tools;
4. Arrange installation tools, lifting equipment, temporary propping and steel framework system stocking;
5. Check steel framework system stock, steel framework system quality, steel framework system marking, work schedule, floor level, steel framework system alignment, starter bar defect, steel framework system works defect;
6. Verify levelling bolt/ pad level, temporary propping in accordance with shop drawings;
7. Carry out instruction by his/ her supervisor;
8. Abide by safety rules and regulations; and
9. Perform all duties in Level 1.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 3
STEEL (FRAMING) SUPERVISOR

Job Definition:

Steel (Framing) Supervisor is the person who is responsible to arrange, prepare, conduct, check, supervise, coordinate, liaise, monitor and verify steel framework system installation activities and perform the assigned duties under senior supervisor/ site agent.

Job Description:

1. Supervise site utilities, lifting equipment arrangement, conduct installation method statement briefing during site mobilization;
2. Supervise steel framework system delivery, steel framework system stocking, steel framework system installation sequence, steel framework system installations;
3. Supervise sub-contractors work with an attitude of achieving accuracy and quality control;
4. Supervise site appointment and office procurement, daily work schedule and daily site report, works discipline;
5. Arrange steel framework system lifting, welding works, steel framework system delivery;
6. Prepare job alignment, personnel appraisal, duty roaster and daily site report;
7. Check manpower requirement, steel framework system orientation steel framework system verticality, welding works;
8. Verify installation tools and equipment, steel framework system setting out, starter bar rectification works, steel framework system joint grouting, and steel framework system repair work;
9. Monitor work attendance;
10. Coordinate site meeting, section budgets, crane movement, archives site document;
11. Liaise with other trades/ team leader in the coordination of works.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 1
TIMBER (FRAMING) OPERATOR

Job Definition:

Timber (Framing) Operator is the person who is responsible to prepare timber frame system storage area, carry out installation works and to ensure effective and efficient timber frame system installation activities.

Job Description:

1. Follow work instruction and job requirement;
2. Prepare timber frame system storage;
3. Carry out production of components;
4. Perform site quality control;
5. Carry out component assembly;
6. Able to carry out instruction by his/ her superior; and
7. Able to abide by safety rules regulations.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
TIMBER (FRAMING) LINE TECHNICIAN

Job Definition:

Timber (Framing) Line Technician is the person who is responsible to perform and check installation of timber frame system building components using installation tools at job site as well as to ensure accurate and efficient timber frame system installation activities.

Job Description:

1. Follow work instruction and job requirement;
2. Set out timber frame system accurately;
3. Co-ordinate utilities set up, timber frame system storage, timber frame system delivery and installation tools;
4. Arrange installation tools, lifting equipment, temporary propping and timber frame system stocking;
5. Check timber frame system stock, timber frame system quality, timber frame system marking, work schedule, floor level, timber frame system alignment, starter bar defect, and timber frame system works defect;
6. Carry out instruction by his/ her supervisor;
7. Abide by safety rules and regulations; and
8. Perform all duties in Level 1.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 3
TIMBER (FRAMING) SUPERVISOR

Job Definition:

Timber (Framing) Supervisor is the person who is responsible to arrange, prepare, conduct, check, supervise, coordinate, liaise, monitor and verify timber frame system installation activities and perform the assigned duties under senior supervisor/ site agent.

Job Description:

1. Supervise site utilities, lifting equipment arrangement, conduct installation method statement briefing during site mobilization;
2. Supervise timber frame system delivery, timber frame system stocking, timber frame system installation sequence, timber frame system installations;
3. Supervise sub-contractors work with an attitude of achieving accuracy and quality control.
4. Supervise site appointment and office procurement, daily work schedule and daily site report, works discipline;
5. Arrange timber frame system lifting, welding works, timber frame system delivery;
6. Prepare job alignment, personnel appraisal, duty roaster and daily site report;
7. Check manpower requirement, timber frame system orientation timber frame system verticality, and welding works;
8. Verify installation tools and equipment, timber frame system setting out, starter bar rectification works, timber frame system joint grouting, and timber frame system repair work;
9. Monitor work attendance;
10. Coordinate site meeting, section budgets, crane movement, achieve site document; and
11. Liaise with other trades/ team leader in the coordination of works.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 1
IBS INNOVATION OPERATOR

Job Definition:

IBS Innovation Operator is the person who is responsible to perform manufacturing and installation of IBS innovation building components using installation tools at job site as well as to ensure accurate and efficient IBS installation activities.

Job Description:

1. Perform daily job duties as directed by supervisor, including but not limited;
2. Perform production of new innovative components as directed;
3. Perform daily maintenance for mould, machine and tools; and
4. Adhere to safety regulations.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
IBS INNOVATION LINE TECHNICIAN

Job Definition:

IBS Innovation Line Technician is the person who is responsible to monitor manufacturing and installation of IBS innovation building components using installation tools at job site as well as to ensure accurate and efficient IBS installation activities.

Job Description:

1. Perform daily job duties as directed by supervisor;
2. Monitor production of new innovative components as per drawings;
3. Monitor daily maintenance for mould, machine and tools; and
4. Adhere to safety regulations.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 3
IBS INNOVATION SUPERVISOR

Job Definition:

IBS Innovation Supervisor is the person who is responsible to manage manufacturing and installation of IBS innovation building components using installation tools at job site as well as to ensure accurate and efficient IBS installation activities.

Job Description:

1. Coordinate, monitor the manufacturing and assembly of components;
2. Oversee the new requirement and changes in design/ drawings;
3. If applicable, establish and manage a budget; approve expenditures; initiate and sign appropriate paperwork as per directed;
4. Maintain files, documents, reports and daily log for staffs/manager as required;
5. Attend all meetings as representative of the department;
6. Adhere to safety and security procedure;
7. Follow standard operating procedure; and
8. To carry out such other duties that may be assigned from time to time.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 4
IBS DESIGN COORDINATOR

Job Definition:

IBS Design Coordinator is responsible to compile and analyses the requirement and needs between site and factory. He produces design and coordinates with draughter in production of shops drawings. He also coordinate time schedule of factory production with site installation schedule.

Job Description:

1. Produce design and shop drawings;
2. Compile and analyses as per submission by site supervisor;
3. Submit technical report and progress report and issue to superior;
4. Understand and interpret on approved construction drawing (modular) specification;
5. Assist in identifying any errors for discrepancies on construction drawing;
6. Coordinate manufacturing and site work progress;
7. Coordinate and inspect drawing production and competencies.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 5
IBS PRODUCTION MANAGER

Job Definition:

IBS Production Manager is the person who is responsible to analyses and interprets construction drawing, specification of workmanship, material, equipment and tools, attend site coordination management and technical coordination meeting, liaise with authorities and manufacturer report, check the accuracy of progress claim and edit shop drawing for manufacturer.

Job Description:

1. Analyse and interpret construction drawing;
2. Analyse and interpret specification of workmanship;
3. Analyse and interpret material, equipment and tools;
4. Attend site coordination management;
5. Attend technical coordination meeting;
6. Liaise with authorities and manufacturer report;
7. Check the accuracy of progress claim;
8. Edit drawings for manufacturer;
9. Provide technical advice;
10. Analyse and interpret data; and
11. Lead the team member under his/her supervision.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
IBS PRECAST INSTALLER

Job Definition:

IBS Precast Installer is the person who is responsible to perform and check installation of precast concrete building components using installation tools at job site as well as to ensure accurate and efficient precast concrete installation activities.

Job Description:

1. Follow work instruction and job requirement;
2. Set out precast component accurately;
3. Co-ordinate utilities set up, precast component storage, precast component delivery and installation tools;
4. Arrange installation tools, lifting equipment, temporary propping and precast component stocking;
5. Check precast component stock, precast component quality, precast component marking, work schedule, floor level, precast component alignment, starter bar defect, precast component works defect;
6. Verify levelling bolt/ pad level, temporary propping in accordance with shop drawings
7. Carry out instruction by his/ her supervisor; and
8. Abide by safety rules and regulations.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 3
IBS PRECAST INSTALLATION SUPERVISOR

Job Definition:

IBS Precast Installation Supervisor is the person who is responsible to arrange, prepare, conduct, check, supervise, coordinate, liaise, monitor and verify precast concrete installation activities and perform the assigned duties under senior supervisor/ site agent.

Job Description:

1. Supervise site utilities, lifting equipment arrangement, conduct installation method statement briefing during site mobilisation;
2. Supervise precast component delivery, precast component stocking, precast component installation sequence, precast component installations;
3. Supervise sub-contractors work with an attitude of achieving accuracy and quality control;
4. Supervise site appointment and office procurement, daily work schedule and daily site report, works discipline;
5. Arrange precast component lifting, welding works, precast component delivery;
6. Prepare job alignment, personnel appraisal, duty roaster and daily site report;
7. Check manpower requirement, precast component orientation, precast component verticality, welding works;
8. Verify installation tools and equipment, precast component setting out, starter bar rectification works, precast component joint grouting, precast component repair work;
9. Coordinate site meeting, section budgets, crane movement, archive site document; and
10. Liaise with other trades/ team leader in the coordination of work.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL2
IBS BLOCK INSTALLER

Job Definition:

IBS Block Installer is the person who is responsible to perform and check installation of block wall system building components using installation tools at job site as well as to ensure accurate and efficient block wall system installation activities.

Job Description:

1. Follow work instruction and job requirement;
2. Set out block wall system accurately;
3. Co-ordinate utilities set up, block wall system storage, block wall system delivery and installation tools
4. Arrange installation tools, lifting equipment, temporary propping and block wall system stocking
5. Check block wall system stock, block wall system quality, block wall system marking, work schedule, floor level, block wall system alignment, starter bar defect, block wall system works defect;
6. Verify levelling bolt/ pad level, temporary propping in accordance with shop drawings
7. Carry out instruction by his/ her supervisor
8. Abide by safety rules and regulations





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 3
IBS BLOCK INSTALLATION SUPERVISOR

Job Definition:

IBS Block Installation Supervisor is the person who is responsible to arrange, prepare, conduct, check, supervise, coordinate, liaise, monitor and verify block wall system installation activities and perform the assigned duties under senior supervisor/ site agent.

Job Description:

1. Supervise site utilities, lifting equipment arrangement, conduct installation method statement briefing during site mobilisation;
2. Supervise block wall component delivery, block wall component stocking, block wall component installation sequence, block wall component installations;
3. Supervise sub-contractors work with an attitude of achieving accuracy and quality control
4. Supervise site appointment and office procurement, daily work schedule and daily site report, works discipline;
5. Arrange block wall component lifting, welding works, block wall component delivery
6. Prepare job alignment, personnel appraisal, duty roaster and daily site report;
7. Check manpower requirement, block wall component orientation, block wall component verticality, welding works;
8. Verify installation tools and equipment, block wall component setting out, starter bar rectification works, block wall component joint grouting, block wall component repair work;
9. Monitor work attendance;
10. Coordinate site meeting, section budgets, crane movement, archive site document; and
11. Liaise with other trades/ team leader in the coordination of works.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
IBS STEEL (TRUSSES) INSTALLER

Job Definition:

IBS Steel (Trusses) Installer is the person who is responsible to perform and check installation of steel trusses system building components using installation tools at job site as well as to ensure accurate and efficient steel trusses system installation activities.

Job Description:

1. Follow work instruction and job requirement;
2. Set out steel trusses system accurately;
3. Co-ordinate utilities set up, steel trusses system storage, steel trusses system delivery and installation tools;
4. Arrange installation tools, lifting equipment, temporary propping and steel trusses system stocking;
5. Check steel trusses system stock, steel trusses system quality, steel trusses system marking, work schedule, floor level, steel trusses system alignment, starter bar defect, steel trusses system works defect;
6. Verify levelling bolt/ pad level, temporary propping in accordance with shop drawings;
7. Carry out instruction by his/ her supervisor; and
8. Abide by safety rules and regulations; and





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 3
IBS STEEL (TRUSSES) INSTALLATION SUPERVISOR

Job Definition:

IBS Steel (Trusses) Installation Supervisor is the person who is responsible to arrange, prepare, conduct, check, supervise, coordinate, liaise, monitor and verify steel trusses system installation activities and perform the assigned duties under senior supervisor/ site agent.

Job Description:

1. Supervise site utilities, lifting equipment arrangement, conduct installation method statement briefing during site mobilisation;
2. Supervise steel trusses system delivery, steel trusses system stocking, steel trusses system installation sequence, steel trusses system installations;
3. Supervise sub-contractors work with an attitude of achieving accuracy and quality control
4. Supervise site appointment and office procurement, daily work schedule and daily site report, works discipline;
5. Arrange steel trusses system lifting, welding works, steel trusses system delivery;
6. Prepare job alignment, personnel appraisal, duty roaster and daily site report;
7. Check manpower requirement, steel trusses system orientation steel trusses system verticality, welding works;
8. Verify installation tools and equipment, steel trusses system setting out, starter bar rectification works, steel trusses system joint grouting, steel trusses system repair work;
9. Monitor work attendance;
10. Coordinate site meeting, section budgets, crane movement, archive site document; and
11. Liaise with other trades/ team leader in the coordination of works.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
IBS TIMBER (TRUSSES) INSTALLER

Job Definition:

IBS Timber (Trusses) Installer is the person who is responsible to perform and check installation of timber trusses system building components using installation tools at job site as well as to ensure accurate and efficient timber trusses system installation activities.

Job Description:

1. Follow work instruction and job requirement;
2. Set out timber trusses system accurately;
3. Co-ordinate utilities set up, timber trusses system storage, timber trusses system delivery and installation tools;
4. Arrange installation tools, lifting equipment, temporary propping and timber trusses system stocking;
5. Check timber trusses system stock, timber trusses system quality, timber trusses system marking, work schedule, floor level, timber trusses system alignment, starter bar defect, timber trusses system works defect;
6. Verify levelling bolt/ pad level, temporary propping in accordance with shop drawings;
7. Carry out instruction by his/ her supervisor;
8. Abide by safety rules and regulations; and
9. Perform all duties in Level 1.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 3
IBS TIMBER (TRUSSES) INSTALLATION SUPERVISOR

Job Definition:

IBS Timber (Trusses) Installer Supervisor is the person who is responsible to arrange, prepare, conduct, check, supervise, coordinate, liaise, monitor and verify timber trusses system installation activities and perform the assigned duties under senior supervisor/ site agent

Job Description:

1. Supervise site utilities, lifting equipment arrangement, conduct installation method statement briefing during site mobilisation;
2. Supervise timber trusses system delivery, timber trusses system stocking, timber trusses system installation sequence, timber trusses system installation;
3. Supervise sub-contractors work with an attitude of achieving accuracy and quality control;
4. Supervise site appointment and office procurement, daily work schedule and daily site report, works discipline;
5. Arrange timber trusses system lifting, welding works, timber trusses system delivery;
6. Prepare job alignment, personnel appraisal, duty roaster and daily site report;
7. Check manpower requirement, timber trusses system orientation timber trusses system verticality, welding works;
8. Verify installation tools and equipment, timber trusses system setting out, starter bar rectification works, timber trusses system joint grouting, timber trusses system repair work
9. Monitor work attendance;
10. Coordinate site meeting, section budgets, crane movement, archive site document; and
11. Liaise with other trades/ team leader in the coordination of works





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
IBS STEEL (FRAMING) INSTALLER

Job Definition:

IBS Steel (Framing) Installer is the person who is responsible to perform and check installation of steel framework system building components using installation tools at job site as well as to ensure accurate and efficient steel framework system installation activities.

Job Description:

1. Follow work instruction and job requirement;
2. Set out steel framework system accurately;
3. Co-ordinate utilities set up, steel framework system storage, steel framework system delivery and installation tools;
4. Arrange installation tools, lifting equipment, temporary propping and steel framework system stocking;
5. Check steel framework system stock, steel framework system quality, steel framework system marking, work schedule, floor level, steel framework system alignment, starter bar defect, steel framework system works defect;
6. Verify levelling bolt/ pad level, temporary propping in accordance with shop drawings;
7. Carry out instruction by his/ her supervisor;
8. Abide by safety rules and regulations; and
9. Perform all duties in Level 1.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 3
IBS STEEL (FRAMING) INSTALLATION SUPERVISOR

Job Definition:

IBS Steel (Framing) Supervisor is the person who is responsible to arrange, prepare, conduct, check, supervise, coordinate, liaise, monitor and verify steel framework system installation activities and perform the assigned duties under senior supervisor/ site agent.

Job Description:

1. Supervise site utilities, lifting equipment arrangement, conduct installation method statement briefing during site mobilization;
2. Supervise steel framework system delivery, steel framework system stocking, steel framework system installation sequence, steel framework system installations;
3. Supervise sub-contractors work with an attitude of achieving accuracy and quality control;
4. Supervise site appointment and office procurement, daily work schedule and daily site report, works discipline;
5. Arrange steel framework system lifting, welding works, steel framework system delivery;
6. Prepare job alignment, personnel appraisal, duty roaster and daily site report;
7. Check manpower requirement, steel framework system orientation steel framework system verticality, welding works;
8. Verify installation tools and equipment, steel framework system setting out, starter bar rectification works, steel framework system joint grouting, and steel framework system repair work;
9. Monitor work attendance;
10. Coordinate site meeting, section budgets, crane movement, archives site document; and
11. Liaise with other trades/ team leader in the coordination of works.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
IBS TIMBER (FRAMING) INSTALLER

Job Definition:

IBS Timber (Framing) Installer is the person who is responsible to perform and check installation of timber frame system building components using installation tools at job site as well as to ensure accurate and efficient timber frame system installation activities.

Job Description:

1. Follow work instruction and job requirement;
2. Set out timber frame system accurately;
3. Co-ordinate utilities set up, timber frame system storage, timber frame system delivery and installation tools;
4. Arrange installation tools, lifting equipment, temporary propping and timber frame system stocking;
5. Check timber frame system stock, timber frame system quality, timber frame system marking, work schedule, floor level, timber frame system alignment, starter bar defect, and timber frame system works defect;
6. Verify levelling bolt/ pad level, temporary propping in accordance with shop drawings;
7. Carry out instruction by his/ her supervisor;
8. Abide by safety rules and regulations; and
9. Perform all duties in Level 1.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 3
IBS TIMBER (FRAMING) INSTALLATION SUPERVISOR

Job Definition:

IBS Timber (Framing) Installation Supervisor is the person who is responsible to arrange, prepare, conduct, check, supervise, coordinate, liaise, monitor and verify timber frame system installation activities and perform the assigned duties under senior supervisor/ site agent.

Job Description:

1. Supervise site utilities, lifting equipment arrangement, conduct installation method statement briefing during site mobilization;
2. Supervise timber frame system delivery, timber frame system stocking, timber frame system installation sequence, timber frame system installations;
3. Supervise sub-contractors work with an attitude of achieving accuracy and quality control.
4. Supervise site appointment and office procurement, daily work schedule and daily site report, works discipline;
5. Arrange timber frame system lifting, welding works, timber frame system delivery;
6. Prepare job alignment, personnel appraisal, duty roaster and daily site report;
7. Check manpower requirement, timber frame system orientation timber frame system verticality, and welding works;
8. Verify installation tools and equipment, timber frame system setting out, starter bar rectification works, timber frame system joint grouting, and timber frame system repair work;
9. Monitor work attendance;
10. Coordinate site meeting, section budgets, crane movement, achieve site document; and
11. Liaise with other trades/ team leader in the coordination of works.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
IBS FORMWORK INSTALLER

Job Definition:

IBS Formwork Installer is the person who is responsible to perform and check installation of formwork system building components using installation tools at job site as well as to ensure accurate and efficient precast concrete installation activities

Job Description:

1. Follow work instruction and job requirement;
2. Set out formwork system accurately;
3. Co-ordinate utilities set up, formwork system storage, formwork system delivery and installation tools;
4. Arrange installation tools, lifting equipment, temporary propping and formwork system stocking;
5. Check formwork system stock, formwork system quality, formwork system marking, work schedule, floor level, formwork system alignment, starter bar defect, formwork system works defect;
6. Verify levelling bolt/ pad level, temporary propping in accordance with shop drawings
7. Carry out instruction by his/ her supervisor;
8. Abide by safety rules and regulations; and
9. Perform all duties in Level 1.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
IBS FORMWORK INSTALLATION SUPERVISOR

Job Definition:

IBS Formwork Installation Supervisor is the person who is responsible to arrange, prepare, conduct, check, supervise, coordinate, liaise, monitor and verify formwork system installation activities and perform the assigned duties under senior supervisor/ site agent.

Job Description:

1. Supervise site utilities, lifting equipment arrangement, conduct installation method statement briefing during site mobilisation;
2. Supervise formwork system delivery, formwork system stocking, formwork system installation sequence, formwork system installation;
3. Supervise sub-contractors work with an attitude of achieving accuracy and quality control
4. Supervise site appointment and office procurement, daily work schedule and daily site report, works discipline;
5. Arrange formwork system lifting, welding works, formwork system delivery;
6. Prepare job alignment, personnel appraisal, duty roaster and daily site report;
7. Check manpower requirement, formwork system orientation, formwork system verticality, and welding works;
8. Verify installation tools and equipment, formwork system setting out, starter bar rectification works, formwork system joint grouting, formwork system repair work;
9. Monitor work attendance;
10. Coordinate site meeting, section budgets, crane movement, archive site document; and
11. Liaise with other trades/ team leader in the coordination of works





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 2
IBS INNOVATION INSTALLER

Job Definition:

IBS Innovation Installer is the person who is responsible to perform and check installation of IBS innovation system building components using installation tools at job site as well as to ensure accurate and efficient timber frame system installation activities.

Job Description:

1. Perform daily job duties as directed by Installation Supervisor, including but not limited;
2. Begin casting product by mucking, vibrating, screeding or other jobs as directed; always wear ear protection, rubber gloves, rubber boots and other protective clothing while pouring concrete;
3. After casting apply sealer, visqueen, tarps and as directed;
4. Never touch, grind, weld, cut and etcetera around cable or rebar without proper instruction;
5. Clean up tools and work area at the end of shift or during shift as the work schedule permits;
6. Use extreme caution when working around cranes, trucks, forklifts, loaders and other equipment. Never get under loads or spreader bar hanging from cranes;
7. Always work safely and follow all established Bethlehem Construction, Inc. safety policies; and
8. Additional duties as assigned by and/or other management and/or supervisory personnel.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 3
IBS INNOVATION INSTALLATION SUPERVISOR

Job Definition:

IBS Innovation Installation Supervisor is the person who is responsible to arrange, prepare, conduct, check, supervise, coordinate, liaise, monitor and verify precast concrete installation activities and perform the assigned duties under senior supervisor/ site agent.

Job Description:

1. Supervise site utilities, lifting equipment arrangement, conduct installation method statement briefing during site mobilisation;
2. Supervise precast component delivery, precast component stocking, precast component installation sequence, precast component installations;
3. Supervise sub-contractors work with an attitude of achieving accuracy and quality control
4. Supervise site appointment and office procurement, daily work schedule and daily site report, works discipline;
5. Arrange precast component lifting, welding works, precast component delivery;
6. Prepare job alignment, personnel appraisal, duty roaster and daily site report;
7. Check manpower requirement, precast component orientation, precast component verticality, welding works;
8. Verify installation tools and equipment, precast component setting out, starter bar rectification works, precast component joint grouting, precast component repair work;
9. Monitor work attendance;
10. Coordinate site meeting, section budgets, crane movement, archive site document; and
11. Liaise with other trades/ team leader in the coordination of works.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 4
IBS INSTALLATION SPECIALIST

Job Definition:

IBS Installation Specialist is the person who is responsible to provide high quality services to its clients, partners and employees; increase the efficiency and productivity of current team members; attract, manage and develop talented and experienced employees; and help develop an infrastructure for rapid growth.

Job Description:

1. Manage and evolve the Professional Service product portfolio such as to increase service revenues and profitability in line with financial targets;
2. To define the business plan and budget, then manage the unit accordingly. The business plan and budget must be adaptable to ensure they are in line with the company's evolving needs;
3. To introduce significant efficiency improvements via improved testing and simplified deployment and support, developing and managing processes that will provide both high levels of customer satisfaction and commercial success;
4. Work in partnership with the engineering team to deliver a high quality and easily deployable product;
5. Development and implementation of all world class customer services;
6. Work in conjunction with members of the senior management team to ensure best practice whilst balancing the company and client's objectives;



7. Ensure resources are available to fulfill the function of the department at the level defined by the current business plan. Regularly reviewing both plan and resource with respect to the current sales forecast and service contract volume, acting to match demand with resource;
8. High level communication with the customer with respect to projects or other matters; and
9. Ensure personnel have accurate and competent knowledge of the full company product range, along with a high level of industry knowledge. This will facilitate discussions with our customers and our own technical departments to resolve customer issues or enquiries quickly and effectively.





BUILDING AND CONSTRUCTION
INDUSTRIALIZED BUILDING SYSTEM (IBS)
LEVEL 5
IBS INSTALLATION MANAGER

Job Definition:

IBS Installation Manager is the person who is responsible to accomplish department objectives by managing staff; planning and evaluating department activities.

Job Description:

1. Maintains staff by recruiting, selecting, orienting, and training employees; maintaining a safe, secure, and legal work environment; developing personal growth opportunities;
2. Accomplishes staff results by communicating job expectations; planning, monitoring, and appraising job results; coaching, counselling, and disciplining employees; developing, coordinating, and enforcing systems, policies, procedures, and productivity standards;
3. Establishes strategic goals by gathering pertinent business, financial, service, and operations information; identifying and evaluating trends and options; choosing a course of action; defining objectives; evaluating outcomes;
4. Accomplishes financial objectives by forecasting requirements; preparing an annual budget; scheduling expenditures; analysing variances; initiating corrective actions;
5. Maintains quality service by enforcing quality and customer service standards; analysing and resolving quality and customer service problems; identifying trends; recommending system improvements;



6. Maintains professional and technical knowledge by attending educational workshops; reviewing professional publications; establishing personal networks; benchmarking state-of-the-art practices; participating in professional societies; and
7. Contributes to team effort by accomplishing related results as needed.



SECTOR: BUILDING & CONSTRUCTION

**SUB-SECTOR 11/13: CONSTRUCTION MACHINERY PLANT &
OPERATION**





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 1
ASSISTANT RIGGER

Job Definition:

Assistant Rigger is a person who is responsible to erect and dismantle structure components for tower crane, crawler crane, passenger hoist, gantry crane, straddle carrier, launcher, and jacking up or lower down structure components to designated heights.

Job Description:

1. Erect and dismantle structure components to assigned/designated heights;
2. Coordinate and communicate with rigger supervisor & machine operator on erection & dismantling work procedures
3. Ensure appropriate sling gear & accessories is selected in erection & dismantling work;
4. Adhere to safety and security procedure while performing erection & dismantling work; and
5. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
CRANE RIGGER

Job Definition:

A Crane Rigger is a person who is responsible to inspect load to be moved, estimate their size, shape and weight and decide on the type of equipment necessary, choose or make slinging equipment and attach it to the load, splice ropes and cables to make slings and tackle, inspect, maintain and repair equipment and ensure sure that safety requirements are met at all times.

Job Description:

1. Inspect objects to be moved, estimate their size, shape and weight;
2. Choose appropriate slinging equipment and attach it to the load;
3. Coordinate & Communicate with Rigger supervisor and machine operator on erection and dismantling work;
4. Inspect, maintain slinging equipment and accessories;
5. Ensure sure that safety requirements are met at all times;
6. Adhere to safety and security procedure while operating in work area; and
7. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 3
RIGGER SUPERVISOR

Job Definition:

Supervisor is a person who is responsible to perform supervision on rigging operation, adhere to company policies and procedures and multi-crane safety protocol, coordinate pre-operational inspection and daily service, verify compliance with schedules maintenance requirement and work procedures planning.

Job Description:

1. Perform supervision on rigging operation;
2. Adhere to company policies and procedures and multi-crane safety protocol;
3. Coordinate pre-operational inspection and daily service;
4. Verify compliance with schedules maintenance requirement;
5. Verify work procedures planning;
6. Inspect the maintenance and storage of rigging equipment;
7. Adhere to safety and security procedure while operating in work area;
8. Follow Standard Operating Procedure; and
9. Perform supervisory functions.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 4
RIGGER MANAGER

Job Definition:

A Rigger Manager is a person who is responsible to obtain and work orders planning unit and assesses/plans for to be accomplished, assigns work to work crews, including rigging operators and crane operators, provides technical advice/instructions to staff as necessary, ensure that standardized and safe rigging and erection procedures are followed by subordinates including the proper positioning of crane and jib and perform administrative duties.

Job Description:

1. Obtain and work orders Planning Unit and assesses/plans for to be accomplished;
2. Assigns work to work crews, including rigging operators and crane operators;
3. Provides technical advice/instructions to staff as necessary;
4. Ensure that standardized and safe rigging and erection procedures are followed by subordinates including the proper positioning of crane and jib;
5. Carry out observation of the, rigging gear, such as winches, blocks shackles, slings etc. are suitable for lifts;
6. Carry out regular inspection on rigging equipment for bent, cut, kinked ropes and rust on metal pieces to ensure safe condition; and
7. Ensure that day to day and scheduled preventive maintenance of cranes is carried out by crane operators and the workshop and perform administrative duties.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 1
TOWER CRANE SIGNALMAN

Job Definition:

Tower Crane Signalman is a person who is responsible to coordinate crane loading and unloading operating work, ensure the load hook is centred over the centre of balance of the load, as the weight is being lifted by the crane, the boom deflection does not exceed the safe load radius, inspect all the rigging gear is straight and not causing damage to itself or the load and follow Standard Operating Procedure.

Job Description:

1. Coordinate crane loading and unloading operating work;
2. Ensure the load hook is centred over the centre of balance of the load;
3. Ensure as the weight is being lifted by the crane;
4. Inspect all the rigging gear is straight and not causing damage to itself or the load;
5. Check the boom suspension system and boom hoist reeving to ensure proper operation during a lift with a lattice boom crane;
6. Check the hook block and boom tip sheaves reeving to ensure proper operation;
7. Check the stability of the outriggers especially when swinging from one quadrant of operation to another;
8. Adhere to safety and security procedure while operating in work area; and
9. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
TOWER CRANE OPERATOR

Job Definition:

Tower Crane Operator is a person who is responsible to perform hoisting operation, carry out communication using signals, adhere to company policies and procedures and multi-crane safety protocol, comply with schedules maintenance requirement and follow Standard Operating Procedure.

Job Description:

1. Perform hoisting operation;
2. Carry out communication using signals;
3. Adhere to company policies and procedures and multi-crane safety protocol;
4. Perform pre-operational inspection and daily service;
5. Comply with schedules maintenance requirement;
6. Plan work procedures;
7. Maintain and store rigging equipment;
8. Adhere to safety and security procedure while operating in work area; and
9. Follow Standard Operating Procedure





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 1
CRAWLER CRANE SIGNALMAN

Job Definition:

Crawler Crane Signalman is a person who is responsible to perform lifting, moving and placing operation, lifting, moving and placing operation, pre-operational inspection and daily service and follow Standard Operating Procedure.

Job Description:

1. Adhere to company policies and procedures and multi-crane safety protocol;
2. Perform lifting, moving and placing operation;
3. Perform lifting, moving and placing operation;
4. Perform pre-operational inspection and daily service;
5. Comply with schedules maintenance requirement;
6. Plan work procedures;
7. Adhere to safety and security procedure while operating in work area; and
8. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
CRAWLER CRANE OPERATOR

Job Definition:

Crawler Crane Operator is a person who is responsible to perform lifting, moving and placing operation, lifting, moving and placing operation, pre-operational inspection and daily service and follow Standard Operating Procedure.

Job Description:

1. Perform lifting, moving and placing operation;
2. Adhere to company policies and procedures and multi-crane safety protocol;
3. Perform pre-operational inspection and daily service;
4. Comply with schedules maintenance requirement;
5. Plan work procedures;
6. Adhere to safety and security procedure while operating in work area; and
7. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 1
MOBILE CRANE SIGNALMAN

Job Definition:

Mobile Crane Signalman is a person who is responsible to perform lifting, moving and placing operation, lifting, moving and placing operation, pre-operational inspection and daily service and follow Standard Operating Procedure.

Job Description:

1. Perform lifting, moving and placing operation;
2. Adhere to company policies and procedures and multi-crane safety protocol;
3. Perform pre-operational inspection and daily service;
4. Comply with schedules maintenance requirement;
5. Plan work procedures;
6. Adhere to safety and security procedure while operating in work area; and
7. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL2
MOBILE CRANE OPERATOR

Job Definition:

Mobile Crane Operator is a person who is responsible to perform lifting, moving and placing operation, lifting, moving and placing operation, pre-operational inspection and daily service and follow Standard Operating Procedure.

Job Description:

1. Adhere to company policies and procedures and multi-crane safety protocol;
2. Perform lifting, moving and placing operation;
3. Perform lifting, moving and placing operation;
4. Perform pre-operational inspection and daily service;
5. Comply with schedules maintenance requirement;
6. Plan work procedures;
7. Adhere to safety and security procedure while operating in work area; and
8. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
BULLDOZER OPERATOR

Job Definition:

Bulldozer Operator is a person who is responsible to operate heavy duty machines equipped with scrapers or blades to spread earth, grade terrain, or move dirt and rock.

Job Description:

1. Drive equipment with blades that level or pick up earth for dumping.
2. Use bulldozers for moving large amounts of dirt.
3. Move throttle and depress pedal to begin smoothing or lifting earth.
4. Follow directions of assistant on ground.
5. Attach different types of blades or attachments depending on job.
6. Control machine using pedals and levers.
7. Practice safety during operation.
8. Read plans for job completion.
9. Work with project manager to ensure job is done to specifications.
10. Perform pre-operational machine inspection
11. Operate machine accordance to operation procedures
12. Ensure proper machine parking;
13. Perform log work record;
14. Perform post operational machine inspection; and
15. Perform basic machine maintenance such as cleaning, greasing, refuelling, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
WHEEL LOADER OPERATOR

Job Definition:

Wheel Loader Operator is a person who is responsible to operate the wheel loader for loading work, carry out routine maintenance with maintenance schedule and recording of loading work, adhere to safety and security procedure while operating in work area and follow Standard Operating Procedure.

Job Description:

1. Operate the wheel loader for loading work;
2. Carry out routine maintenance in accordance with maintenance schedule;
3. Carry out recording of loading work;
4. Adhere to safety and security procedure while operating in work area; and
5. Follow Standard Operating Procedure.
6. Perform pre-operational machine inspection;
7. Operate machine accordance to operation procedures;
8. Ensure proper machine parking;
9. Perform log work record;
10. Perform post operational machine inspection; and
11. Perform basic machine maintenance such as cleaning, greasing, refuelling, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
EXCAVATOR OPERATOR

Job Definition:

Excavator Operator is a person who is responsible to operate the hydraulic excavator for excavating work, carry out routine maintenance with maintenance schedule and recording of excavating work, adhere to safety and security procedure while operating in work area and follow Standard Operating Procedure.

Job Description:

1. Operate the hydraulic excavator for excavating work;
2. Carry out routine maintenance in accordance with maintenance schedule;
3. Carry out recording of excavating work;
4. Adhere to safety and security procedure while operating in work area; and
5. Follow Standard Operating Procedure.
6. Perform pre-operational machine inspection;
7. Operate machine accordance to operation procedures;
8. Ensure proper machine parking;
9. Perform log work record;
10. Perform post operational machine inspection; and
11. Perform basic machine maintenance such as cleaning, greasing, refuelling, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
DUMP TRUCK OPERATOR

Job Definition:

Dump Truck Operator is a person who is responsible to carry out daily work record, record loading document, perform method of statement and carry out periodic preventative maintenance.

Job Description:

1. Carry out daily work record;
2. Record loading document;
3. Perform method of statement;
4. Carry out periodic preventative maintenance;
5. Perform daily operative maintenance on assigned trucks and equipment;
6. Operate earth dump truck to haul gravel and material to work site;
7. Operate fuel truck to deliver fuel to work site;
8. Adhere to safety and security procedure; and
9. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
BACKHOE LOADER OPERATOR

Job Definition:

Backhoe Loader Operator is a person who is responsible to operate the backhoe loader for loading work, carry out routine maintenance with maintenance schedule and recording of loading work, adhere to safety and security procedure while operating in work area and follow Standard Operating Procedure.

Job Description:

1. Operate the backhoe loader for loading, digging, slopping, trenching work;
2. Carry out routine maintenance in accordance with maintenance schedule;
3. Carry out recording of loading work;
4. Adhere to safety and security procedure while operating in work area; and
5. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
BACK PUSHER OPERATOR

Job Definition:

Back Pusher Operator is a person who is responsible to operate the back pusher machine for ground levelling work, carry out routine maintenance with maintenance schedule and recording of ground work, adhere to safety and security procedure while operating in work area and follow standard operating procedure.

Job Description:

1. Operate the back pusher machine for ground levelling work;
2. Carry out routine maintenance in accordance with maintenance schedule;
3. Carry out recording of loading work;
4. Adhere to safety and security procedure while operating in work area; and
5. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
PAVER COMPACTOR OPERATOR

Job Definition:

A Paver Compactor Operator is a person who is responsible to operate equipment used for applying asphalt or other materials to road beds to the correct line and level in accordance with the specification. The job includes routine maintenance of equipment and adheres to safety and security procedure at work site.

Job Description:

1. Operate the paver machine;
2. Carry out routine maintenance in accordance with maintenance schedule;
3. Ensure the asphalt is placed to the correct line and level and in accordance with the specification;
4. Ensure that appropriate guarding is installed and in good working order prior to operation;
5. Adhere to safety and security procedure while operating in work area; and
6. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 3
PLANT EXECUTIVE/PLANT COORDINATOR

Job Definition:

Plant Executive/Plant Coordinator is a person who is responsible to coordinate plant construction work requirements. This includes preparation of pre-commencement works checklist, coordination with relevant authorities, monitoring of manpower requirement, quality control and safety at work site.

Job Description:

1. Prepare pre-commencement works checklist;
2. Coordinate with relevant authorities;
3. Monitor short term manpower on site;
4. Supervise plant & machinery operation;
5. Prepare daily work activities;
6. Perform assigned machinery operation quality control;
7. Prepare work method statements;
8. Prepare subordinate appraisal;
9. Adhere to safety and security procedure; and
10. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 4
ASSISTANT PLANT MANAGER

Job Definition:

Assistant Plant Manager is the person who is responsible to administer the management of overall plant construction work progress. This includes preparation of mechanical and electrical work method statements and tender programme, arrangement of work resources and work meetings, monitoring of safety and security procedure implementation.

Job Description:

1. Perform site visit;
2. Prepare machinery and plant work method statements;
3. Prepare machinery and plant work tender programme;
4. Administer machinery and plant work documentation;
5. Monitor plant & machinery operation progress;
6. Monitor machinery and plant resources requirements;
7. Conduct machinery and plant work coordination meetings;
8. Adhere to safety and security procedure; and
9. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
PLACING BOOM OPERATOR

Job Definition:

Placing Boom Operator is the person who is responsible at sites to operate and maintain placing boom according to job specification site safety requirements. The person needs to coordinate with site concreting schedule, cleaning and maintaining equipment.

Job Description:

1. Assess hazards and required precautions;
2. Perform pre-operational machine inspection;
3. Operate machine accordance to operation procedures;
4. Ensure proper machine parking;
5. Perform log work record;
6. Perform post operational machine inspection; and
7. Perform basic machine maintenance: cleaning, greasing, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
CONCRETE PUMP OPERATOR

Job Definition:

Concrete Pump Operator is a person who is responsible to perform concreting work at work site. This includes operation of concrete pump, routine equipment maintenance and recording of concreting work according to job specification and requirement. The person must adhere to safety and security procedure while operating in work area and follow Standard Operating Procedure.

Job Description:

1. Operate the concrete pump for concreting work;
2. Carry out routine maintenance in accordance with maintenance schedule;
3. Carry out recording of concreting work;
4. Adhere to safety and security procedure while operating in work area;
5. Follow Standard Operating Procedure;
6. Perform pre-operational machine inspection;
7. Operate machine accordance to operation procedures;
8. Ensure proper machine parking;
9. Perform log work record;
10. Perform post operational machine inspection; and
11. Perform basic machine maintenance : cleaning, greasing, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
PASSENGER HOISTING OPERATOR

Job Definition:

Passenger Hoisting Operator is a person who is responsible to perform passenger hoist operation, passenger and load control, maintain and clean up equipment as per maintenance procedures.

Job Description:

1. Perform pre-operational machine inspection;
2. Operate machine accordance to operation procedures;
3. Ensure proper machine parking;
4. Perform log work record;
5. Perform post operational machine inspection;
6. Adhere to safety and security procedure; and Standard Operating Procedure; and
7. Perform basic machine maintenance : cleaning, greasing, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
GENERATOR SET TECHNICIAN

Job Definition:

Generator Set Technician is a person who is responsible to control, operate, or maintain generator set operation in accordance with job specification and requirements.

Job Description:

1. Regulate equipment operations and conditions;
2. Start or stop generators, auxiliary pumping equipment, turbines, or other power plant equipment as necessary.
3. Record and compile operational data by completing and maintaining forms, logs, or reports.
4. Clean, lubricate, or maintain equipment
5. Take regulatory action, based on readings from charts, meters and gauges, at established intervals.
6. Control power generating equipment and make adjustments or minor repairs.
7. Inspect records or log book entries or communicate with plant personnel to assess equipment operating status.
8. Place standby emergency electrical generators on line in emergencies and monitor the temperature, output, and lubrication of the system and adhere to safety and security procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
AIR COMPRESSOR OPERATOR

Job Definition:

Air Compressor Operator is a person who is responsible to operate air compressor to work specification, check air compressor safety gauges, clean and maintain air compressor in accordance with job specification and requirements.

Job Description:

1. Switch from automatic to manual controls and isolate equipment mechanically and electrically to allow for safe inspection and repair work;
2. Monitor and inspect equipment, computer terminals, switches, valves, gauges, alarms, safety devices, and meters to detect leaks or malfunctions and to ensure that equipment is operating efficiently and safely;
3. Adjust controls and/or valves on equipment to provide power, and to regulate and set operations of system;
4. Observe and interpret readings on gauges, meters, and charts registering various aspects of boiler operation to ensure that boilers are operating properly;
5. Maintain daily logs of operation, maintenance, and safety activities, including test results, instrument readings, and details of equipment malfunctions and maintenance work; and
6. Perform maintenance and arrange for repair as and when required.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
BAR BENDER/CUTTER OPERATOR

Job Definition:

Bar Bender/Cutter Operator is a person who is responsible to perform the operation of bar bending and cutting work activities at work site in accordance with job specification and requirements. This includes arrangement of bar bending resources such as tools, equipment and materials, fabrication works, work area setup and inspection of materials and sampling.

Job Description:

1. Check suitability of reinforcement bar storage area;
2. Perform setting bar cutting shear;
3. Perform setting steel bar cutting machines;
4. Check bar bending pin setting;
5. Perform estimating reinforcement materials quantity;
6. Prepare bar bending schedule;
7. Prepare cutting schedule;
8. Check bar cutting work;
9. Check bar bending shape work;
10. Check reinforcement tying;
11. Check reinforcement placing;
12. Check reinforcement spacer placing;



13. Perform housekeeping;
14. Confirm to method of statement;
15. Carry out bar bending;
16. Setting up work area such as levelling, loading and unloading of materials;
17. Carry out inspection on materials;
18. Carry out sampling on materials; and
19. Carry out sorting out of sizes and types of bar.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
GONDOLA OPERATOR

Job Definition:

A Gondola Operator is a person who is responsible to handle, operate and maintain the Gondola lift equipment to work and safety specification.

Job Description:

1. Remove debris around gondola station;
2. Perform pre-operational machine inspection;
3. Operate machine accordance to operation procedures;
4. Ensure proper machine parking;
5. Perform log work record;
6. Perform post operational machine inspection;
7. Perform basic machine maintenance: cleaning, greasing, machine system inspection;
and
8. Perform other duties as assigned.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 1
ASPHALTS PAVER CHAINMAN

Job Definition:

Asphalts Paver Chainman is a person who is responsible to assist in the operation of paver machine and carry out routine machine maintenance in accordance with job specification and requirement. The job includes installation of appropriate guarding at work site, adhere to safety and security procedure requirement.

Job Description:

1. Assist to operate the paver machine;
2. Assist in the routine maintenance in accordance with maintenance schedule;
3. Ensure the asphalt is placed to the correct line and level and in accordance with the specification;
4. Carry out the appropriate guarding is installed and in good working order prior to operation;
5. Adhere to safety and security procedure while operating in work area; and
6. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
ASPHALTS PAVER OPERATOR

Job Definition:

Asphalts Paver Operator is a person who is responsible to perform the operation of paver machine and carry out routine machine maintenance in accordance with job specification and requirement. The job includes installation of appropriate guarding at work site, adhere to safety and security procedure requirement.

Job Description:

1. Operate the paver machine;
2. Carry out routine maintenance in accordance with maintenance schedule;
3. Ensure the asphalt is placed to the correct line and level according to specification;
4. Ensure that appropriate guarding is installed and in good working order;
5. Adhere to safety and security procedure while operating in work area;
6. Follow Standard Operating Procedure;
7. Perform pre-operational machine inspection;
8. Operate machine accordance to operation procedures;
9. Ensure proper machine parking;
10. Perform log work record;
11. Perform post operational machine inspection; and
12. Perform basic machine maintenance: cleaning, greasing, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
TANDEM ROLLER OPERATOR

Job Definition:

Tandem Roller Operator is the person who is responsible to operate and maintain equipment used for applying concrete, asphalt, or other materials to road beds, parking lots, or airport runways and taxiways, or equipment used for tamping gravel, dirt, or other materials includes concrete and asphalt paving machine operators, form tampers, tamping machine operators, and stone spreader operators.

Job Description:

1. Operate machines to spread, smooth, level, or steel-reinforce stone, concrete, or asphalt on road beds.
2. Start machine, engage clutch, and push and move levers to guide machine along forms or guidelines and to control the operation of machine attachments.
3. Operate tamping machines or manually roll surfaces to compact earth fills, foundation forms, and finished road materials, according to grade specifications.
4. Light burners or start heating units of machines, and regulate screed temperatures and asphalt flow rates.
5. Drive machines onto truck trailers, and drive trucks to transport machines and material to and from job sites.



6. Observe distribution of paving material to adjust machine settings or material flow, and indicate low spots for workers to add material.
7. Control paving machines to push dump trucks and to maintain a constant flow of asphalt or other material into hoppers or screeds.
8. Perform pre-operational machine inspection;
9. Operate machine accordance to operation procedures;
10. Ensure proper machine parking;
11. Perform log work record;
12. Perform post operational machine inspection; and
13. Perform basic machine maintenance: cleaning, greasing, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
TYRE ROLLER OPERATOR

Job Definition:

Tyre Roller Operator is the person who is responsible to operate pneumatic tire roller for ground works especially on uneven ground, carry out routine maintenance in accordance with maintenance schedule and compacting work according to instruction and specification, adhere to safety and security procedure while operating in work area and follow Standard Operating Procedure.

Job Description:

1. Operate Pneumatic Tyre Roller for ground works especially on uneven ground;
2. Carry out routine maintenance in accordance with maintenance schedule;
3. Carry out compacting work according to instruction and specification;
4. Adhere to safety and security procedure while operating in work area;
5. Follow Standard Operating Procedure;
6. Perform pre-operational machine inspection;
7. Operate machine accordance to operation procedures;
8. Ensure proper machine parking;
9. Perform log work record;
10. Perform post operational machine inspection; and
11. Perform basic machine maintenance: cleaning, greasing, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
VIBRATION ROLLER OPERATOR

Job Definition:

Vibration Roller Operator is the person who is responsible to operate of self-propelled steel-wheeled, rubber-tired, vibrator type roller to compact earth, sub grade, sub-base and asphalt surfaces in the construction of highways, streets and runways. Roller operators may also be required to compact earth fills, sub grades and flexible base.

Job Description:

1. Drives machine in successive overlapping passes over surfaces to be compacted, rolling sub grade and asphalt to desired compaction and smoothness;
2. Determines speed and direction of machine based on knowledge of compressibility of material under changing temperatures;.
3. Pushes hand roller and pounds surfaces, using hand tamp, or guides portable power roller over areas not accessible to road roller;
4. Adhere to safety and security procedure;
5. Perform pre-operational machine inspection;
6. Operate machine accordance to operation procedures;
7. Ensure proper machine parking;
8. Perform log work record;
9. Perform post operational machine inspection; and
10. Perform basic machine maintenance: cleaning, greasing, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
MILLING MACHINE OPERATOR

Job Definition:

Milling Machine Operator is the person who is responsible to set up, operate, or tend milling or planning machines to mill, plane, shape, groove and bitumen road surfaces.

Job Description:

1. Position and secure work pieces on machines, using holding devices, measuring instruments, hand tools, and hoists;
2. Remove work pieces from machines, and check to ensure that they conform to specifications, using measuring instruments such as microscopes, gauges, callipers, and micrometres;
3. Select and install cutting tools and other accessories according to specifications, using hand tools or power tools;
4. Select cutting speeds, feed rates, and depths of cuts, applying knowledge of metal properties and shop mathematics;
5. Observe milling or planning machine operation and adjust controls to ensure conformance with specified tolerances;
6. Adhere to safety and security procedure;
7. Follow Standard Operating Procedure;
8. Perform pre-operational machine inspection;
9. Operate machine accordance to operation procedures;



10. Ensure proper machine parking;
11. Perform log work record;
12. Perform post operational machine inspection; and
13. Perform basic machine maintenance: cleaning, greasing, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
SKID STEER LOADER OPERATOR

Job Definition:

Skid Steer Loader Operator is the person who is responsible to operate and maintain skid steer loader to work and safety specification that load and carry lands, big stones and debris. This person is part of a construction team that works on land excavation.

Job Description:

1. Carry out land excavation using maintain skid steer loader;
2. Carry out to load land, cement or stones and unload or transfer to the excavated area;
3. Adhere to safety and security procedure;
4. Follow Standard Operating Procedure;
5. Perform pre-operational machine inspection;
6. Operate machine accordance to operation procedures;
7. Ensure proper machine parking;
8. Perform log work record;
9. Perform post operational machine inspection; and
10. Perform basic machine maintenance: cleaning, greasing, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
STRADDLE CARRIER OPERATOR

Job Definition:

Straddle Carrier Operator is the person who is responsible to operate and maintain straddle carrier to work and safety specification. Straddle Carrier operation involves the movement of materials/loads around a warehouse, storage yard, factory, construction site or similar location.

Job Description:

1. Manually or mechanically load or unload materials from pallets, skids, platforms, cars, lifting devices, or other transport vehicles;
2. Inspect product load for accuracy and safely move it around the warehouse or facility to ensure timely and complete delivery;
3. Perform routine maintenance on vehicles or auxiliary equipment;
4. Position lifting devices under, over, or around loaded pallets, skids, or boxes and secure material or products for transport to designated areas;
5. Move controls to drive gasoline- or electric-powered trucks, cars, or tractors and transport materials between loading, processing, and storage areas;
6. Signal workers to discharge, dump, or level materials;
7. Operate or tend automatic stacking, loading, packaging, or cutting machines;
8. Adhere to safety and security procedure; and follow Standard Operating Procedure;
9. Perform pre-operational machine inspection;
10. Operate machine accordance to operation procedures;



11. Ensure proper machine parking;
12. Perform log work record;
13. Perform post operational machine inspection; and
14. Perform basic machine maintenance: cleaning, greasing, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
SEGMENTAL LAUNCHER OPERATOR

Job Definition:

Segmental Launcher Operator is the person who is responsible to operate segmental launcher for construction of precast bridges, include launching gantries for precast segmental box girders, segment lifters, beam launcher for precast beams and steel moulds. Launching gantry is used for the erection of precast segments in the span-by-span or balanced cantilever construction.

Job Description:

1. Inspect and adjust segmental launcher mechanisms or lifting accessories to prevent malfunctions or damage;
2. Inspect cables or grappling devices for wear and install or replace cables, as needed;
3. Determine load weights and check them against lifting capacities to prevent overload;
4. Clean, lubricate, and maintain mechanisms such as cables, pulleys, or grappling devices, making repairs as necessary;
5. To ensure helpers engaged in placing blocking or outrigging under cranes;
6. Review daily work or delivery schedules to determine orders, sequences of deliveries, or special loading instructions;
7. Weigh bundles, using floor scales, and record weights for company records;
8. Direct truck drivers backing vehicles into loading bays and cover, uncover, or secure loads for delivery; and
9. Adhere to safety and security procedure and follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
PILING MACHINE OPERATOR

Job Definition:

Piling Machine Operator is the person who is responsible to operate and maintain piling machine to work and safety specification.

Job Description:

1. Use safety attires and gears while performing various job;
2. Perform piling works, erect and dismantle formwork;
3. Adhere to safety and security procedure;
4. Follow Standard Operating Procedure;
5. Perform pre-operational machine inspection;
6. Operate machine accordance to operation procedures;
7. Ensure proper machine parking;
8. Perform log work record;
9. Perform post operational machine inspection; and
10. Perform basic machine maintenance: cleaning, greasing, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
BORING MACHINE OPERATOR

Job Definition:

Boring Machine Operator is the person who is responsible to perform machining operations, such as boring and counter boring. This includes lifting of work piece manually or with hoist and clamps it in holding fixtures.

Job Description:

1. Move machine controls to feed tool into work piece and engage feed;
2. Observe machine operation and verify conformance of bored work piece to specifications using measuring instruments such as fixed gauges, callipers and micrometres;
3. Changes worn tools using wrenches;
4. Move controls to adjust cutting speeds, feed rates, and depth of cut;
5. Perform aid machine setter in setting up machine;
6. May bore or drill plastics or other non-metallic materials;
7. Adhere to safety and security procedure and follow Standard Operating Procedure;
8. Perform pre-operational machine inspection;
9. Operate machine accordance to operation procedures;
10. Ensure proper machine parking;
11. Perform log work record;
12. Perform post operational machine inspection; and
13. Perform basic machine maintenance: cleaning, greasing, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
TUNNELING MACHINE OPERATOR

Job Definition:

Tunnelling Machine Operator is the person who is responsible to perform Tunnel Boring Machine (TBM) operation. This includes the handling of guidance system control of the machine parameter and guidance system.

Job Description:

1. To inspect and maintenance of the TBM Machine while in operation;
2. Identify operating problems, report them to supervisor and perform emergency repairs;
3. To inspect the machine and equipment to detect faults and malfunctions; determine the extent of repair;
4. To assist schedules maintenance work based on the condition of the tunnel boring machine;
5. Service attachments and working tools; keep equipment cleaned, lubricated and maintained;
6. Test repaired equipment for proper performance ensuring that work meets specifications and completion of TBM setup checklist;
7. Perform the initial start-up of the machine and stabilize the machine for operation;
8. Work in conjunction with the Mechanic /Foreman and the Senior Mechanical Engineer to performs repair and maintenance of hydraulic components;
9. Perform other related duties as required; and
10. Adhere to safety and security procedure and follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
PVD MACHINE OPERATOR

Job Definition:

PVD Machine Operator is the person who is responsible to perform PVD machine operation and responsible for the operation, including guidance system control of the machine parameter and guidance system.

Job Description:

1. To inspect and maintenance of the PVD Machine while in operation;
2. Troubleshoot and fix equipment as necessary and repair or replace defective parts, components or systems;
3. Identify operating problems, report them to supervisor and perform emergency repairs;
4. To inspect the machine and equipment to detect faults and malfunctions; determine the extent of repair;
5. To assist schedules maintenance work based on the condition of the PVD machine;
6. Service attachments and working tools; keep equipment cleaned, lubricated and maintained;
7. Test repaired equipment for proper performance ensuring that work meets specifications;
8. Perform the initial start-up of the machine and stabilize the machine for operation;
9. Work in conjunction with the Mechanic /Foreman and the Senior Mechanical Engineer;
10. Perform other related duties as required; and
11. Adhere to safety and security procedure and follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
PIPE LAYER MACHINE OPERATOR

Job Definition:

Pipe Layer Machine Operator is the person who is responsible to lay pipe for storm or sanitation sewers, drains, and water mains. Perform any combination of the following tasks: grade trenches or culverts, position pipe, or seal joints.

Job Description:

1. To perform and configure pipe routes according the specifications of a building's design;
2. To assemble, connect and construct pipe systems;
3. Determine the correct pipes and pipe route for a job;
4. Dig trenches with trenching tools;
5. To slide pipes into the appropriate trenches and align the various pipeline sections;
6. To assist a tractor driver on where to move the pipe prior to welding;
7. Inspect pipe systems to ensure proper alignment and check for defects;
8. To complete and cover the pipes with dirt or other materials befitting the location;
9. Perform other related duties as required;
10. Adhere to safety and security procedure; and
11. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
MICRO MACHINE OPERATOR

Job Definition:

Micro Machine Operator is the person who is responsible to operate the Micro Drilling Machine and install pipe by jacking the pipe behind a micro tunnel boring machine.

Job Description:

1. Examine the geotechnical report and borings and obtain additional information as required;
2. Ensure that the system provided will be capable of operating successfully given groundwater conditions, soil type, potential for obstructions and all geotechnical parameters pertinent to this type of micro tunnelling;
3. Acquire geotechnical information accurately;
4. Monitor work progress;
5. Minimize obstructions with a maximum lateral dimension of less than one foot;
6. Capable to advance past said obstructions either by this method or by open trench method;
7. Ensure sewer pipe used on this project within the defined limits of work;
8. Perform other related duties as required;
9. Adhere to safety and security procedure; and
10. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
LOW LOADER OPERATOR

Job Definition:

Low Loader Operator is the person who is responsible to operate and maintain low loader machine in order to move equipment around a warehouse or from one point to another.

Job Description:

1. Move material heavy crates, drums, and boxes around warehouse or construction site;
2. Operate mobile, power-driven vehicle used to carry, push, pull, lift, stack, or tier material;
3. Move levers and pedals to slip forks under pallets or skids, use tow bars to pull small trailers;
4. Clean and maintain machine;
5. Perform regular maintenance such as lubricate truck, recharge batteries, or fill fuel tank.
6. Inventory materials on work floor;
7. Perform other related duties as required;
8. Adhere to safety and security procedure and follow Standard Operating Procedure;
9. Perform pre-operational machine inspection;
10. Operate machine accordance to operation procedures;
11. Ensure proper machine parking;
12. Perform log work record;
13. Perform post operational machine inspection; and
14. Perform basic machine maintenance: cleaning, greasing, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
LORRY CARGO OPERATOR

Job Definition:

Lorry Cargo Operator is the person who is responsible to operate and maintain industrial tractor-trailers and other large vehicles to transport cargo over various distances

Job Description:

1. Inspect empty trailer equipment prior usage;
2. Maintain and clean the vehicle;
3. Plan trip and manages his/her road time to ensure loads are picked up and delivered according to schedule as assigned;
4. Communicate with operations to maintain accurate and up-to-date ETA;
5. Advise Operations immediately by satellite (or phone) when conditions change and an assigned load cannot be picked up or delivered on schedule;
6. Perform other related duties as required;
7. Adhere to safety and security procedure and follow Standard Operating Procedure;
8. Perform pre-operational machine inspection;
9. Operate machine accordance to operation procedures;
10. Ensure proper machine parking;
11. Perform log work record;
12. Perform post operational machine inspection; and
13. Perform basic machine maintenance: cleaning, greasing, machine system inspection.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
LORRY CRANE OPERATOR

Job Definition:

Lorry Crane Operator is the person who is responsible to operate and maintain lorry crane. Require minimal setup and assembly, lorry cranes are designed to get to the work site quickly and lift a variety of loads. Lorry cranes typically have a telescoping boom with a hook suspended by a wire rope.

Job Description:

1. Operate gasoline- or diesel-powered crane mounted on specially constructed truck chassis to lift and move materials and objects;
2. Drive truck to work site and directs activities of labourer, hoisting in placing blocks and outriggers to prevent capsizing when lifting heavy loads;
3. Start crane engine and moves levers and pedals to rotate crane on chassis, to raise and lower crane boom, and to raise and lower load line;
4. Operate crane according to signals from helper;
5. Bolt boom sections together to extend or modify boom for pile driving or high lifting;
6. Perform other related duties as required;
7. Adhere to safety and security procedure; and
8. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
SKY LIFT OPERATOR

Job Definition:

Sky Lift Operator is the person who is responsible to operate a sky lift. The Operator is accountable for the safe and efficient operation of the vehicle.

Job Description:

1. Perform the assign task load, unload, move, stack, and stage product and materials; using a forklift, clamp truck, or other power equipment;
2. Use radio frequency equipment for picking, receiving, put away, and load functions, as required;
3. Maintain the facility's equipment and materials in a neat, clean, and orderly fashion;
4. Inspect and perform minor maintenance on the forklift or other equipment;
5. Operate all equipment in a safe and efficient manner following prescribed work methods;
6. Perform other related duties as required;
7. Adhere to safety and security procedure; and
8. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 2
CONSTRUCTION WORKSHOP MECHANIC

Job Definition:

Construction Workshop Mechanic is the person who is responsible to perform diagnostic, overhaul, adjustment, repair and maintenance of vehicles and equipment under general supervision and perform related work as required.

Job Description:

1. Repair and overhaul engines, transmissions, components, electrical and fuel systems for various vehicle, plant, machinery and equipment;
2. Perform tune ups, brake jobs and other preventative maintenance;
3. Perform other related duties as required;
4. Adhere to safety and security procedure; and
5. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 3
CONSTRUCTION WORKSHOP FOREMAN

Job Definition:

Construction Workshop Foreman is the person who is responsible to perform work in the diagnostic, overhaul, adjustment, repair and maintenance of campus vehicles and equipment; complete metal fabrication and repairs as needed and perform related work as required.

Job Description:

1. Determine the priorities of work to be done;
2. Communicate with management;
3. Repairs and overhauls engines, transmissions, components, electrical and fuel systems for various powered and rolling equipment;
4. Perform tune ups, brake jobs and other preventative maintenance;
5. Weld and fabricate steel, aluminium and stainless steel fabricated projects using mig, tig, stick and gas;
6. Assists in the writing of specifications for acquisition of vehicles;
7. Perform other related duties as required;
8. Adhere to safety and security procedure; and
9. Follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 4
ASSISTANT WORKSHOP MANAGER

Job Definition:

Assistant Workshop Manager is the person who is responsible for the operational conduct of workshop staff and the general management of plant maintenance and repair. This includes assisting in the supervision, training and development of staff. When the workshop manager is unavailable the assistant workshop manager will deal with various clientele and suppliers and maintain a consistent and ethical approach to their utilisation. To facilitate this, a high level of communication and problem solving skills are required to enable effective liaison with both internal and external customers.

Job Description:

1. Liaise with external suppliers;
2. Arrange delivery and pick up of spare parts;
3. Liaison with regards to client / plant requirements;
4. Manage the attendance of field service to breakdowns and long term hire sites;
5. Assess damage on returning machines;
6. Assess, audit and on-going monitor of approved plant and equipment;
7. Manage the maintenance and repair processes of plant and equipment;
8. Control and supervision of subcontractors, suppliers, work and materials delivered;
9. Workshop/yard cleanliness, tidiness and litter management including general amenities;
10. Perform other related duties as required;
11. Adhere to safety and security procedure and follow Standard Operating Procedure.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 5
WORKSHOP MANAGER

Job Definition:

Workshop Manager is the person who is responsible to manage and lead a team of people in allocating workload and managing the day to day operations in the workshop. It requires the job holder to co-ordinate resources and liaises with internal and external key contacts to ensure work is delivered on time and to a quality standard.

Job Description:

1. Responsible for job allocation and job flow in the workshop including job scheduling and labour allocation for day to day operations;
2. Ensure supplies are ordered for each job;
3. Assist with quoting, project management, materials purchasing and quality checks;
4. Ensure correct job numbers are used and that time records are correct;
5. Provide oversight and check job estimates;
6. Report on manpower overruns or shortfalls;
7. Act as a technical adviser on key projects and other areas of the business as requested;
8. Receive and review feedback from customers and follow up to ensure customer satisfaction;
9. Discuss with team to identify appropriate course of action; and
10. Develop and implement systems to record, file and store information pertaining to client enquiries.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 5
PLANT MANAGER

Job Definition:

Plant Manager is the person who is responsible to perform site visit, prepare mechanical and electrical work method statements and tender programme, administer mechanical and electrical work documentation, monitor fire protection works, mechanical and electrical resources requirements, conduct mechanical and electrical work coordination meetings, adhere to safety and security procedure and follow standard operating procedure.

Job Description:

1. Analyse and interpret construction drawing;
2. Specification of workmanship, material, equipment and tools;
3. Attend site coordination management and technical coordination;
4. Liaise with authorities;
5. Prepare and submit progress report to superior; and
6. Check the accuracy of progress claim.





BUILDING AND CONSTRUCTION
CONSTRUCTION MACHINERY PLANT & OPERATION
LEVEL 6
PLANT DIRECTOR

Job Definition:

Plant Director is the person who is responsible to acknowledge receive certified construction drawings and work progress, approve completed works, method of statement, material equipment samples, issue job order, job order factories, visit and approve manufacturers, coordinate with civil engineering, management and organizations, jointly inspect with fire department and local authorities, certify installation, testing and commissioning, evaluate/ analyses reports consultation drawing, attend management meeting, attend site meeting, approve and submit variation order (VO), approve and submit progress claim, attend technical coordination meeting and approve certificate of practical completion (CPC), RE and RA.

Job Description:

1. Acknowledge receive certified construction drawings and work progress;
2. Approve completed works;
3. Approve method of statement;
4. Approve material equipment samples;
5. Issue job order;
6. Coordinate with civil engineering, management and organizations;
7. Jointly inspect with related authorities for plant certification approval;
8. Certify installation, testing and commissioning.



SECTOR: BUILDING & CONSTRUCTION

SUB-SECTOR 12/13: BUILDING MATERIALS





BUILDING AND CONSTRUCTION
BUILDING MATERIALS
READY MIXED CONCRETE (RMC) PLANT
LEVEL 1
RMC PLANT APPRENTICE

Job Definition:

A RMC Plant Apprentice is designated to perform general works in a plant such as raw materials receiving & storage, preparation & maintenance of tools and carrying out duties related to plant housekeeping.

Job Description:

1. Handle raw materials receiving;
2. Prepare related tools & materials for plant operation;
3. Carry out routine maintenance on tools and equipment;
4. Clean sludge catchment area;
5. Perform housekeeping on plant structure;
6. Adhere to company's Standard Operating Procedure;
7. Perform other duties as assigned; and
8. Comply with safety rules & regulations.





BUILDING AND CONSTRUCTION
BUILDING MATERIALS
READY MIXED CONCRETE (RMC) PLANT
LEVEL 2
RMC PLANT OPERATOR / BATCHER

Job Definition:

A RMC Plant Operator / Batchers is designated to set up and tear down, operation, maintenance and record keeping of portable concrete batch plant. In addition to operating the plant, the operator will assist with the coordination of daily plant activities such as scheduling truck drivers and ordering plant materials. Operate concrete batching system. Manage controls to heat, weigh and mix aggregate, cement, and water to produce concrete that conforms to processing specifications.

Job Description:

1. Carry out works related to plant cleanliness;
2. Oversee all maintenance and mobilizing of the mobile concrete batch plant;
3. Ensure that all products meet 100% total quality requirements;
4. Take samples and test as necessary;
5. Ensure all equipment is working properly;
6. Complete all required reports timely and accurately;
7. Inform proper personnel of any quality problems that need resolving;
8. Ensure all vehicles and equipment continually remain in safe and efficient operating condition;



9. Monitor all preventative and regular maintenance on vehicles and equipment;
10. Maintain adequate levels of all supplies and products;
11. Maintain accurate and current reports as required.
12. Ensure that all company safety regulations and policies are followed at all times.
13. Ensure that all company environmental regulations and policies are followed.





BUILDING AND CONSTRUCTION
BUILDING MATERIALS
READY MIXED CONCRETE (RMC) PLANT
LEVEL 3
RMC PLANT SUPERVISOR

Job Definition:

A RMC Plant Supervisor is designated to set up and tear down, operation, maintenance and record keeping of portable concrete batch plant. In addition to operating the plant, the supervisor will assist with the coordination of daily plant activities such as scheduling truck drivers, ordering plant materials and supporting administrative functions. Operate concrete batching system. Manage controls to heat, weigh and mix aggregate, cement, and water to produce concrete that conforms to processing specifications.

Job Description:

1. Oversee all plant operations;
2. Coordinate and monitor daily workload throughout the plant;
3. Monitor plant cleanliness;
4. Oversee all maintenance and mobilizing of the mobile concrete batch plant;
5. Ensure that all products meet 100% total quality requirements;
6. Take samples and test as necessary;
7. Ensure all equipment is working properly;
8. Complete all required reports timely and accurately;
9. Inform proper personnel of any quality problems that need resolving;



10. Ensure all vehicles and equipment continually remain in safe and efficient operating condition;
11. Monitor all preventative and regular maintenance on vehicles and equipment;
12. Maintain adequate levels of all supplies and products;
13. Maintain accurate and current reports as required.
14. Ensure that all company safety regulations and policies are followed at all times.
15. Ensure that all company environmental regulations and policies are followed.





BUILDING AND CONSTRUCTION
BUILDING MATERIALS
READY MIXED CONCRETE (RMC) PLANT
LEVEL 4
RMC PLANT EXECUTIVE

Job Definition:

A RMC Plant Executive is designated to work under the supervision of a plant manager and responsible for the general plant operation and maintenance to achieve the assigned production objectives by motivating the staff members. In addition, he/she is responsible for resolving the employee issues with the help of human resource department. Plant Executive also reviews the production, quality, operations and maintenance reports to know the pros and cons related to the production work.

Job Description:

1. Co-ordinate and direct the staff members regarding the activities that need to be performed in the absence of the plant manager;
2. To keep a close eye on the buying, selling and quality of the material used in production to give maximum output;
3. To make optimum use of the equipment and available manpower to ensure better productivity;
4. To ensure that the work gets done as per the priority within the framed budget by maintaining the quality standards and delivering the products on the given deadline;
5. Implement new plans to ensure better results in accordance with the quality standards; and
6. To maintain, compile, store and retrieve any data and information related to the production





BUILDING AND CONSTRUCTION
BUILDING MATERIALS
READY MIXED CONCRETE (RMC) PLANT
LEVEL 5
RMC PLANT MANAGER

Job Definition:

A RMC Plant Manager is responsible for directing and coordinating the daily operations of a plant. This includes developing efficiency strategies to ensure the plant meets production goals and standards at minimal manufacturing costs. The plant manager works directly with department heads to coordinate purchasing, production and distribution operations. Duties include instituting policies and procedures, training supervisors and administrators, maintaining a production schedule, giving performance reviews and motivating staff to meet production goals.

Job Description:

1. Direct and manage plant operations for production, maintenance, quality and shipping and receiving;
2. Coordinate plant activities through the planning with departmental managers to insure the total manufacturing objectives are accomplished in a timely and cost effective manner;
3. Develop and control profits, plans, and budget;
4. Implement cost effective systems of control over capital, operating expenditures, manpower, wages and salaries;
5. Manages capital asset maintenance;



6. Establish and monitor overall plant performance for production and quality standards;
7. Control and minimize labor overtime, premium freight and repair expenses;
8. Maintain existing plant facilities and equipment; replace, or make adjustments to plant facilities and equipment when necessary;
9. Provide leadership and training to accomplish the company goals and objectives;
10. Implements and maintains preventative maintenance programs;
11. Incorporates shop floor organization and plant cleanliness among plant personnel; and
12. Provides direction, development and leadership to production supervisor.





BUILDING AND CONSTRUCTION
BUILDING MATERIALS
READY MIXED CONCRETE (RMC) QUALITY CONTROL
LEVEL 1
RMC FIELD TECHNICIAN

Job Definition:

A RMC Field Technician is designated to collect concrete sample at plant and complete quality control checklist.

Job Description:

1. Collect concrete sampling as per work instruction;
2. Work closely and communicate with QC Supervisor and client field inspectors;
3. Maintain quality records, project documentation, including QC Log Book and record nonconforming products;
4. Read and interpret work instructions;
5. Utilise tools & equipment during duties execution;
6. Comply with Safety, Health & Environment requirements;
7. Follow Standard Operating Procedures; and
8. Perform other duties as assigned.





BUILDING AND CONSTRUCTION
BUILDING MATERIALS
READY MIXED CONCRETE (RMC) QUALITY CONTROL
LEVEL 2
RMC QUALITY CONTROL TECHNICIAN

Job Definition:

A RMC Quality Control Technician is responsible for maintaining quality-assurance processes, testing products and recording and analyzing results data during product development and manufacturing. Reporting to a quality control manager, quality control technicians follow through on set processes and ensure adherence to best production practices and product quality standards, as well as monitoring the efficiency and cost-effectiveness of product output.

Job Description:

1. Support factory quality engineers and managers with customer and supplier issues;
2. Calibrate and maintain all gauges and test machines;
3. Perform routine testing to ensure quality and adherence to regulations and standards.
4. Conduct risk assessment and corrective action solutions;
5. Inspect and test concrete so that they are safe to use, and meet or exceed acceptable tolerances;
6. Read blueprints and technical documents;
7. Use tools such as magnifying glasses, rulers and gauges to make their examinations;
8. Discuss their efforts with other technicians, supervisors, engineers and managers, and may write reports explaining their findings.





BUILDING AND CONSTRUCTION
BUILDING MATERIALS
READY MIXED CONCRETE (RMC) QUALITY CONTROL
LEVEL 3
RMC QUALITY CONTROL SUPERVISOR

Job Definition:

A RMC Quality Control Supervisor is designated to supervise and coordinate activities of workers engaged in inspecting and testing ready mix concrete through stages of batching process, applying knowledge of quality assurance standards and procedures: Reviews quality assurance instructions, batching specifications, and production schedules to determine method of conducting inspections and tests, sequence of operations, and work assignments.

Job Description:

1. Assign workers in quality assurance inspection and testing, to assure that establishment and regulatory standards are met;
2. Assign training of new workers to qualified workers;
3. Prepare reports and confers with quality assurance, production, management, and engineering personnel to solve work-related problems;
4. Performs other duties as described under supervisory functions;
5. Comply with Safety, Health & Environment requirements; and
6. Follow Standard Operating Procedures.





BUILDING AND CONSTRUCTION
BUILDING MATERIALS
READY MIXED CONCRETE (RMC) QUALITY CONTROL
LEVEL 4
RMC QUALITY CONTROL EXECUTIVE

Job Definition:

A RMC Quality Control Executive is responsible to develop, implement and manage quality control systems designed to ensure continuous production of ready mix concrete (consistent with established standards, customer specifications and production goals). The position supervises a team of quality control workers.

Job Description:

1. Ensure a high level of internal and external customer service;
2. Investigate and take corrective action on customer issues and complaints relating to quality;
3. Supervise workers engaged in inspection and testing activities to ensure high productivity and high technical integrity;
4. Develop and analyse statistical data and product specifications to determine standards and to establish quality and reliability expectancy of finished products;
5. Provide technical and statistical expertise to teams;
6. Coordinate objectives with production procedures in cooperation with other plant managers to maximize product reliability and minimize costs;
7. Create, document and implement inspection criteria and procedures;
8. Provide, and oversee, inspection activity for product throughout production cycle;
9. Apply total quality management tools and approaches to analytical and reporting processes;
10. Maintain active role on internal continuous improvement teams; and
11. Design, develop and implement quality control training programs.





BUILDING AND CONSTRUCTION
BUILDING MATERIALS
READY MIXED CONCRETE (RMC) QUALITY CONTROL
LEVEL 5
RMC QUALITY CONTROL MANAGER

Job Definition:

A RMC Quality Control Manager is designated to monitor and advise on the performance of the quality management system, produce data and report on performance, measuring against set standards. They liaise with other managers and staff throughout the organisation to ensure that the quality management system is functioning properly. Where appropriate, they advise on changes and how to implement them and provide training, tools and techniques to enable others to achieve quality standards.

Job Description:

1. Establish company's quality procedures, standards and specifications;
2. Review customer requirements and making sure they are met;
3. Work with purchasing staff to establish quality requirements from external suppliers;
4. Set standards for quality as well as health and safety;
5. Ensure that production processes meet international and national standards;
6. Formulate ways to reduce waste and increase efficiency;
7. Define quality procedures in conjunction with operating staff;
8. Set up and maintaining controls and documentation procedures;
9. Monitor performance by gathering relevant data and producing statistical reports;



10. Provide suggestions for changes and improvements and how to implement them;
11. Utilise relevant quality tools and making sure managers and other staff understand how to improve the business; and
12. Ensure the company is working as effectively as possible to keep up with competitors.



SECTOR: BUILDING & CONSTRUCTION

SUB-SECTOR 13/13: FACILITY MAINTENANCE





BUILDING AND CONSTRUCTION
FACILITY MAINTENANCE (POST CONSTRUCTION)
LEVEL 1
SERVICEMAN (MECHANICAL / AUTOMATION / ELECTRICAL)

Job Definition:

Serviceman is designated to assist daily routine of repair, maintain production and facility equipment according to safety, predictive, preventive & productive maintenance systems and processes to support the achievement of the site's business goals and objectives.

Job Description:

1. Assist Senior Mechanical/ Automation / Electrical Facility Technician duties to install and maintain production machines and the plant facility's equipment;
2. Assist simple emergency/unscheduled repairs of production equipment during production and scheduled maintenance repairs of production equipment during machine service under immediate supervision;
3. Perform light and routine machinist duties and responsibilities;
4. Properly maintain materials, tools and equipment;
5. Attend and complete relevant on-the-job training as required;
6. Perform regular preventive maintenance on machines, equipment and plant facilities;
7. Adhere to safety and security regulations and maintain clean and orderly work areas as per standard operating procedure; and
8. Any other matters in pursuance of the general care of the business premise during operating hours.





BUILDING AND CONSTRUCTION
FACILITY MAINTENANCE (POST CONSTRUCTION)
LEVEL 1
ASSISTANT PIPE FITTER

Job Definition:

Assistant Pipe Fitter is the person responsible to carry out routine assembling and installing pipe systems and pipe supports, prepare preparation for testing and daily work record under the direction of the assigned supervisor.

Job Description:

1. Assist Pipefitter Technician to carry out pipe system layout under immediate supervision;
2. Carry out daily work record, order proper pipes and other materials as instructed;
3. Carry out routine maintenance such as modifying, cleaning and maintaining pipe systems, units, fittings and related machines & equipment, following specifications using hand and power tools;
4. Assist Pipefitter Technician to installs pipe for steam, hot water, heating, cooling, lubricating, sprinkling & industrial production and processing systems;
5. Prepare materials and prepare preparation for testing at job site;
6. Resolve and repair simple problems such as obstructions or holes, cracks and leaks;
7. Adhere to safety and security regulations and maintain clean and orderly work areas as per standard operating procedure; and
8. Any other matters in pursuance of the general care of the business premise during operating hours.





BUILDING AND CONSTRUCTION
FACILITY MAINTENANCE (POST CONSTRUCTION)
LEVEL 1
ASSISTANT TECHNICIAN

Job Definition:

An Assistant Technician is designated to assist the routine duties of Civil Technician.

Job Description:

1. Assist in coordinate test of materials, processes or systems related to civil works;
2. Carry out the control and minimisation of air, water and solid waste pollution and the management of water resources under immediate supervision;
3. Carry out simple commission of completed works, order and gather components and parts, completing installation, perform acceptance tests;
4. Carry out work orders, investigate complaints, conduct tests and resolve problems under the direction of the assigned supervisor;
5. Ensure personal equipment operating by following operating instructions, troubleshoot breakdowns, maintain supplies and perform preventive maintenance, calling for repairs;
6. Adhere to safety and security regulations and maintain clean and orderly work areas as per standard operating procedure; and
7. Any other matters in pursuance of the general care of the business premise during operating hours.





BUILDING AND CONSTRUCTION
FACILITY MAINTENANCE (POST CONSTRUCTION)
LEVEL 2
SENIOR MECHANICAL FACILITY SERVICEMAN

Job Definition:

A Senior Mechanical Facility Serviceman work involves serving as a lead worker under him/her in the performance of repair and maintenance tasks within the maintenance work centre that supports the efficient and safe operation. Work is primarily mechanical in nature but includes some related electrical duties.

Job Description:

1. Carry out repairs, tuning, support functioning acceptance test (FAT), and corrective preventative maintenance on a wide variety of building and facility equipment, fixtures and systems;
2. Assist supervisor to installs, troubleshoots, repairs and maintains a wide variety of facility plumbing, mechanical, heating, and cooling systems;
3. Assignments are semi-routine in nature. Works perform within generally defined parameters;
4. Receives general instructions and review of job plans for all work such as operates, maintains and performs minor upgrade projects on mechanical systems;
5. Adhere to safety and security regulations and maintain clean and orderly work areas as per standard operating procedure; and
6. Any other matters in pursuance of the general care of the business premise during operating hours.





BUILDING AND CONSTRUCTION
FACILITY MAINTENANCE (POST CONSTRUCTION)
LEVEL 2
SENIOR AUTOMATION FACILITY SERVICEMAN

Job Definition:

Senior Automation Facility Serviceman is designated to report to the Facility Maintenance Supervisor to manage the daily operation and maintenance of the premises, plants or buildings. The Senior Automation Facility Serviceman is also referred to as robotics technicians and control and instrumentation personnel. They monitor and operate machines designed to perform tasks with minimal human intervention.

Job Description:

1. Familiar with building automation and controls systems;
2. Check meters, gauges to verify that machines work properly to ensure they meet company standards and repairs complex control systems malfunctions under direction of the assigned supervisor;
3. Assists internal facilities technicians & external service providers with day to day operational troubleshooting and repair of complex system malfunctions including preventive and corrective maintenance;
4. Carry out routine maintenance following job specifications using hand and power tools;
5. Assist the work of other personnel in facilities or business premises including carpenters, painters, and telecommunications staff if necessary;
6. Adhere to safety and security regulations and maintain clean and orderly work areas as per standard operating procedure; and
7. Any other matters in pursuance of the general care of the business premise during operating hours.





BUILDING AND CONSTRUCTION
FACILITY MAINTENANCE (POST CONSTRUCTION)
LEVEL 2
SENIOR ELECTRICAL FACILITY SERVICEMAN

Job Definition:

A Senior Electrical Facility Serviceman must be able to supervise and mentor Junior Electrical Facility Serviceman. Provides direction and work closely with maintenance support staff and performs related duties as required.

Job Description:

1. Under general supervision, coordinates the installation, test/debug, reconditioning and repair of electrical equipment/systems within his/her area of expertise in facilities or business premises;
2. Utilize computer to create reports to monitor utility consumption, and manage energy conservation strategies in assigned facilities;
3. Operate the facilities management system to control and monitor the buildings HVAC and hot water systems;
4. Perform maintenance, corrective and preventive maintenance duties, including HVAC service, electronic lock repairs, boiler repairs, and pump and compressor motor replacement;
5. Carry out routine maintenance following job specifications using hand and power tools;
6. Assist the work of other personnel in facilities or business premises including carpenters, painters, and telecommunications staff if necessary;



7. Adhere to safety and security regulations and maintain clean and orderly work areas as per standard operating procedure; and
8. Any other matters in pursuance of the general care of the business premise during operating hours.





BUILDING AND CONSTRUCTION
FACILITY MAINTENANCE (POST CONSTRUCTION)
LEVEL 2
PIPE FITTER TECHNICIAN

Job Definition:

Pipe Fitter Technician is a person who is responsible to install, assemble, fabricate, maintain and repair mechanical piping systems. Pipefitters are employed in the maintenance departments of power stations, refineries, offshore installations, factories or high rise residential buildings and business premises.

Job Description:

1. Carry out work involves install and maintain a various pipe systems;
2. Perform duties for both high and low pressure pipes that carry hot water, steam and other liquid gases, especially those in industrial and commercial buildings;
3. Carry out duties in high and enclosed spaces, climb and bend and most of time work in extreme temperature ranges;
4. Carry out work that includes layout, fabrication, assembly, installation and the maintenance of piping and piping systems, appurtenances and equipment for steam;
5. Inspect work sites to determine presence of obstructions and to ascertain that holes, leakage will not cause structural weakness;
6. Adhere to safety and security regulations and maintain clean and orderly work areas as per standard operating procedure; and
7. Any other matters in pursuance of the general care of the business premise during operating hours.





BUILDING AND CONSTRUCTION
FACILITY MAINTENANCE (POST CONSTRUCTION)
LEVEL 2
CIVIL TECHNICIAN

Job Definition:

A Civil Technician is a person who is responsible to perform professional field and office work which includes design and construction of roads, sanitation, sewage, drainage, water and other public works facilities under general supervision.

Job Description:

1. Draft detailed dimensional drawings and design layouts for projects;
2. Carry out simple analysis of proposed site factors and design maps, graphs, tracings, and diagrams to illustrate findings;
3. Carry out review of project blueprints and structural specifications to determine dimensions of structure or system and material requirements under general supervision;
4. Prepare reports and document project activities and data as assigned by the supervisor;
5. Confer with supervisor to determine project details, such as plan preparation, acceptance testing, and evaluation of field conditions;
6. Assist project site inspection and evaluate task performed by workers to detect design malfunctions and ensure conformance to design specifications and applicable codes;
7. Adhere to safety and security regulations and maintain clean and orderly work areas as per standard operating procedure; and
8. Any other matters in pursuance of the general care of the business premise during operating hours.





BUILDING AND CONSTRUCTION
FACILITY MAINTENANCE (POST CONSTRUCTION)
LEVEL 3
FACILITY MAINTENANCE SUPERVISOR

Job Definition:

Facility Maintenance Supervisor is designated to manage and assist in the completion of the day-to-day activities involving the maintenance of the building/facility, equipment and machinery, including HVAC, building lighting systems, grounds keeping, security and overall facility appearance. The position supervises and coordinates the work of employees who repair and maintain building/facility, equipment and machinery.

Job Description:

1. Plan, prioritize, assign, supervise, review, and participate in the work of staff responsible for facility maintenance under general supervision Facility Maintenance Executive;
2. Assist FM Executive to prepare work schedules, assigns and oversees the work product while minimizing overtime and call-in hours (periodic, daily);
3. Assist in preparation and administration of the facility maintenance budget and expenditures, preparation of various contracts, requests for proposals and reports;
4. Assist in control supplies and equipment; order supplies and tools as necessary; prepare documents for equipment procurement; prepare specifications and contracts for contract services;
5. Perform the technical and tasks of the work unit;
6. Provide information to the management; investigate complaints and recommend solution;



7. Carry out and coordinate training in facility maintenance and safety methods, procedures and techniques;
8. Organize preventive maintenance and safety inspection programs for all facilities and equipment; and
9. Assist in coordination of post construction projects, upgrading and other special projects.





BUILDING AND CONSTRUCTION
FACILITY MAINTENANCE (POST CONSTRUCTION)
LEVEL 4
FACILITY MAINTENANCE EXECUTIVE

Job Definition:

A Facility Maintenance Executive is designated to coordinate and supervise the work of employees in the general maintenance and upkeep of buildings, grounds, and equipment. He/she is responsible for maintaining electrical, plumbing, piping, mechanical and related systems.

Job Description:

1. Supervise and assigns the work of maintenance employees;
2. Inspect work for completeness. Determines material, equipment, and supplies to be used;
3. Transfer equipment and personnel from one project to another as necessary;
4. Keep time cards and other routine records;
5. Coordinates or install, inspects repairs and maintains the electrical, plumbing, piping, mechanical and other related systems in buildings/ premise locations;
6. Coordinate or inspect, operates and maintains the heating, cooling and ventilation systems (including boiler system) in building/premise locations;
7. Assign task to the workers for general repairs such as painting, patching walls, security hardware, hanging shelves and landscaping accordingly;
8. Coordinate renovations of existing facilities and the construction of new facilities;
9. Coordinate and inspect major contract work on the electrical, plumbing, piping, mechanical and other related systems in buildings/premise locations; and
10. Assign and inspect the work of other maintenance and janitorial employees.





BUILDING AND CONSTRUCTION
FACILITY MAINTENANCE (POST CONSTRUCTION)
LEVEL 5
FACILITY MAINTENANCE MANAGER

Job Definition:

A Facility Maintenance Manager is responsible for the management of services and processes that support the core business of an organization. They ensure that an organization has the most suitable working environment for its employees and their activities. Facility Maintenance Manager is involved in both strategic planning and day-to-day operations, particularly in relation to buildings and premises.

Job Description:

1. Investigating availability and suitability of options for new premises;
2. Calculate and compare costs for required goods or services to achieve maximum value for money;
3. Plan for future continuity of development in line with strategic business objectives;
4. Direct, coordinate, plan and lead one or more teams to cover various areas of responsibility such as housekeeping/janitor, security, reception ,mechanical, electrical, automation and building department;
5. Ensuring the building meets health and safety requirements and that facility comply with legislation of fire safety procedures and compliance; and
6. Liaising with estate landlords and local authorities.



4.5 Building & Construction Occupational Area Structure (OAS)

The Occupational Area Analysis is done so that the current job titles in the industry are translated into the job scope required of the personnel. In doing so, candidates are expected to have better employment prospects, as there will be no mismatch of job titles to expected job competencies. This is because different organisations use different job titles. Certification will also be able to reflect the job competencies correctly and avoid confusion of job scope based on job titles.

In this study for Building & Construction industry, the Occupational Area Structure is extracted from the Occupational Structures. In examining the industry work structure, facilitator and panels have broken the industry into 4 areas namely consultancy, construction, manufacturing and installation. Given the differences in areas in which by definition performing variation of tasks from similar competency base, the same sub-sector under different areas carry different label as far as the Occupational Area Analysis is concerned. For instance, landscape architecture job title in level 4 and 5 of consultancy area is labelled as services while for construction are labelled as management. However mostly all level 3 and 2 across all sub-sectors regardless the area it is in shared the same label which are supervision for level 3, and operation for level 2 respectively.

For most of the areas, during the Occupational Area Analysis, the Level 1 job areas could be merged and embedded into level 2 competencies. In terms of merging between job areas vertically, the panel members had gone over each job area and agreed that only job areas that had the similar skill set differentiated by slightly higher or lower certification or competency level could be merged.



Table 37 : Occupational Area Structure (OAS) for Town & Country Planning

SECTOR	BUILDING & CONSTRUCTION	
SUB SECTOR	TOWN & COUNTRY PLANNING	
AREA	CONSULTANCY	
JOB AREA	PROJECT ASSESSMENT	TECHNICAL
LEVEL 8	No Level	No Level
LEVEL 7	No Level	No Level
LEVEL 6	No Level	No Level
LEVEL 5	Town Planning Management	
LEVEL 4	Project Assessment Administration	
LEVEL 3	Project Supervision	Town Planning Draughting
LEVEL 2	Technical Administration	
LEVEL 1	No Level	

Table 38 : Occupational Area Structure (OAS) for Building Survey

SECTOR	BUILDING & CONSTRUCTION	
SUB SECTOR	BUILDING SURVEY	
AREA	CONSULTANCY	
JOB AREA	PROJECT	TECHNICAL
LEVEL 8	No Level	
LEVEL 7	No Level	
LEVEL 6	No Level	
LEVEL 5	Professional Building Surveyor Services	
LEVEL 4	Building Surveyor Services	
LEVEL 3	Technical Building Surveyor Supervision	
LEVEL 2	Building Survey Operations	
LEVEL 1	No Level	



Table 39 : Occupational Area Structure (OAS) for Architecture

SECTOR	BUILDING & CONSTRUCTION	
SUB SECTOR	ARCHITECTURE	
AREA	CONSULTANCY	
JOB AREA	PROJECT	TECHNICAL
LEVEL 8	No Level	No Level
LEVEL 7	No Level	No Level
LEVEL 6	No Level	No Level
LEVEL 5	Architectural Project Management	Architectural Technical Management
LEVEL 4	Architectural Design Services	
LEVEL 3	Architectural Project Supervision	Architectural Draughting Services
LEVEL 2	Architectural Draughting	
LEVEL 1	No Level	

Table 40 : Occupational Area Structure (OAS) for Civil & Structure

SECTOR	BUILDING & CONSTRUCTION	
SUB SECTOR	CIVIL ENGINEERING	
AREA	CONSULTANCY	
JOB AREA	PROJECT	TECHNICAL
LEVEL 8	No Level	No Level
LEVEL 7	No Level	No Level
LEVEL 6	No Level	No Level
LEVEL 5	C & S Engineering Project Management	C & S Engineering Design Services
LEVEL 4	C & S Engineering Project Management	C & S Engineering Design Services
LEVEL 3	C & S Engineering Project Supervision	C & S Engineering Draughting Services
LEVEL 2	No Level	C & S Draughting
LEVEL 1	No Level	No Level



Table 41 : Occupational Area Structure (OAS) for Quantity Survey

SECTOR	BUILDING & CONSTRUCTION
SUB SECTOR	QUANTITY SURVEY
AREA	CONSULTANCY
JOB AREA	PROJECT
LEVEL 8	No Level
LEVEL 7	No Level
LEVEL 6	No Level
LEVEL 5	Quantity Survey Contract Management
LEVEL 4	Quantity Survey Contract Management
LEVEL 3	Quantity Survey Supervision
LEVEL 2	No Level
LEVEL 1	No Level



Table 42 : Occupational Area Structure (OAS) for Land Survey & Geomatics

SECTOR	BUILDING & CONSTRUCTION						
SUB SECTOR	LAND SURVEY & GEOMATICS						
AREA	CONSULTANCY						
JOB AREA	MANAGEMENT	CADASTRAL / ENGINEERING SURVEY	UTILITY MAPPING	PHOTO GRAMMETRY	HYDROGRAPHY	REMOTE SENSING	GEOGRAPHIC INFORMATION SYSTEM (GIS)
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 5	GLS Project Management	Land Survey Services	Utility Mapping Services	Photogrammetry Services	Hydrographic Survey Services	Remote Sensing Services	GIS Services
LEVEL 4	GLS Project Management	Land Survey Services	Utility Mapping Services	Photogrammetry Services	Hydrographic Survey Services	Remote Sensing Services	GIS Services
LEVEL 3	GLS Administration Services	Land Survey Supervision	Utility Mapping Supervision	Photogrammetry Supervision	Hydrographic Survey Supervision	Remote Sensing Supervision	GIS Supervision
LEVEL 2	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level	No Level



Table 43 : Occupational Area Structure (OAS) for Mechanical & Electrical

SECTOR	BUILDING & CONSTRUCTION	
SUB SECTOR	MECHANICAL & ELECTRICAL ENGINEERING	
AREA	CONSULTANCY	
JOB AREA	PROJECT	TECHNICAL
LEVEL 8	No Level	No Level
LEVEL 7	No Level	No Level
LEVEL 6	No Level	No Level
LEVEL 5	M & E Engineering Services	M & E Engineering Services
LEVEL 4	M & E Engineering Services	M & E Engineering Design Services
LEVEL 3	M & E Engineering Supervision	Draughting Services
LEVEL 2	Technician	No Level
LEVEL 1	No Level	No Level

Table 44 : Occupational Area Structure (OAS) for Landscape Architecture

SECTOR	BUILDING & CONSTRUCTION	
SUB SECTOR	LANDSCAPE ARCHITECTURE	
AREA	CONSULTANCY	
JOB AREA	PROJECT	DESIGN
LEVEL 8	No Level	No Level
LEVEL 7	No Level	No Level
LEVEL 6	No Level	No Level
LEVEL 5	Landscaping Architect Management	Landscaping Architect Services
LEVEL 4	Landscaping Architect Management	Landscaping Architect Services
LEVEL 3	Landscaping Supervision	Draughting & Technical Services
LEVEL 2	Technician	No Level
LEVEL 1	No Level	No Level



Table 45 : Occupational Area Structure (OAS) for Safety, Health & Environment

SECTOR	BUILDING & CONSTRUCTION	
SUB SECTOR	SAFETY, HEALTH & ENVIRONMENT	
AREA	CONSULTANCY	
JOB AREA	PROJECT	TECHNICAL
LEVEL 8	No Level	No Level
LEVEL 7	No Level	No Level
LEVEL 6	No Level	No Level
LEVEL 5	Safety Management	No Level
LEVEL 4	Safety & Environmental Management	Traffic Management
LEVEL 3	Safety Supervision	Traffic & Environmental Supervision
LEVEL 2	Safety Operations	Traffic Operations
LEVEL 1	No Level	No Level

Table 46 : Occupational Area Structure (OAS) for Industrialized Building System (IBS) Manufacturing

SECTOR	BUILDING & CONSTRUCTION			
SUB SECTOR	INDUSTRIALIZED BUILDING SYSTEM (IBS)			
AREA	MANUFACTURING			
JOB AREA	PRECAST (PC) & BLOCK (B)	STEEL & TIMBER (S & T)	FORMWORK (FW)	INNOVATION
LEVEL 8	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level
LEVEL 5	IBS Technology Services			
LEVEL 4	IBS Design Coordination Services			
LEVEL 3	PC & B Supervision	S & T Supervision	FW Supervision	Innovation Supervision
LEVEL 2	Production Operations	Production Operations	Production Operations	Production Operations
LEVEL 1	Embed into Level 2	Embed into Level 2	Embed into Level 2	Embed into Level 2



Table 47 : Occupational Area Structure (OAS) for Industrialized Building System (IBS) Installation

SECTOR	BUILDING & CONSTRUCTION					
SUB SECTOR	INDUSTRIALIZED BUILDING SYSTEM (IBS)					
AREA	INSTALLATION (CONSTRUCTION)					
JOB AREA	PRECAST (PC)	INNOVATION	BLOCK (B)	STEEL (S)	TIMBER (T)	FORMWORK (FW)
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 5	IBS Installation Management					
LEVEL 4	IBS Installation Services					
LEVEL 3	IBS PC & Innovation & B Installation Supervision			IBS S&T Installation Supervision		IBS FW Installation Supervisor
LEVEL 2	IBS PC & Innovation & B Operations			IBS S&T Operations		IBS FW Operations
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level



Table 48 : Occupational Area Structure (OAS) for Construction Plant & Machinery Operations

SECTOR	BUILDING & CONSTRUCTION							
SUB SECTOR	CONSTRUCTION MACHINERY PLANT & OPERATIONS							
AREA	CONSTRUCTION							
JOB AREA	CRANES		EARTHWORK	BUILDING MACHINERY	ROAD CONSTRUCTION	PROJECT	TRANSPORT	
LEVEL 8	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level
LEVEL 5	Plant Management							
LEVEL 4	Rigging Management	Plant Management						Workshop Management
LEVEL 3	Rigging Supervision	Plant Coordination & Supervision						Workshop Supervision
LEVEL 2	Rigging Operations	Cranes Operations	Earth Work Operations	Building Machinery Operations	Road Construction Operations	Project Operations	Transport Operations	Workshop Operations
LEVEL 1	No Level	No Level	No Level	No Level	No Level	No Level	No Level	No Level



Figure 6 : Occupational Area Structure (OAS) for Building Materials

SECTOR	BUILDING AND CONSTRUCTION	
SUB SECTOR	BUILDING MATERIALS	
JOB AREA	READY MIXED CONCRETE (RMC) PLANT	
	OPERATIONS	
	Production Plant	Quality Control (QC)
L5	RMC Plant Operations Management	
L4	RMC Plant Operations Administration	
L3	RMC Plant Operations Supervision	
L2	RMC Plant Operations	
L1	RMC Plant Operations	



Table 49 : Occupational Area Structure (OAS) for Civil Engineering

SECTOR	BUILDING & CONSTRUCTION				
SUB SECTOR	CIVIL ENGINEERING				
AREA	CONSTRUCTION				
JOB AREA	ROADWORK	BRIDGE	WATER RETICULATION & SEWERAGE	EARTHWORK / RETAINING WALL / GEOTECHNICAL	STRUCTURE/ FENCING & GATE
LEVEL 8	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level
LEVEL 5	Civil Engineering Project Management				
LEVEL 4	Civil Engineering Project Management				
LEVEL 3	Civil Engineering Project Supervision				
LEVEL 2	Civil Engineering Operations				
LEVEL 1	No Level	No Level	No Level	No Level	No Level

Table 50 : Occupational Area Structure (OAS) for Quantity Survey

SECTOR	BUILDING & CONSTRUCTION
SUB SECTOR	QUANTITY SURVEY
AREA	CONSTRUCTION
JOB AREA	TECHNICAL
LEVEL 8	No Level
LEVEL 7	No Level
LEVEL 6	No Level
LEVEL 5	Quantity Survey Services
LEVEL 4	Quantity Survey Services
LEVEL 3	Quantity Survey Supervision
LEVEL 2	QS Draughting
LEVEL 1	No Level

Table 51 : Occupational Area Structure (OAS) for Architecture Construction

SECTOR	BUILDING & CONSTRUCTION		
SUB SECTOR	ARCHITECTURE		
AREA	CONSTRUCTION		
JOB AREA	PROJECT		
LEVEL 8	No Level		
LEVEL 7	No Level		
LEVEL 6	No Level		
LEVEL 5	Architectural Project Management / Architectural Construction Management		
LEVEL 4	No Level		
LEVEL 3	Architectural Construction Supervisor / Architectural Draughting Supervision		
LEVEL 2	Architectural Construction Operations		
LEVEL 1	No Level	No Level	No Level

Table 52 : Occupational Area Structure (OAS) for Mechanical Engineering

SECTOR	BUILDING & CONSTRUCTION			
SUB SECTOR	MECHANICAL & ELECTRICAL ENGINEERING (MECHANICAL)			
AREA	CONSTRUCTION			
JOB AREA	HVAC	PLUMBING	INFRASTRUCTURE	FIRE PROTECTION
LEVEL 8	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level
LEVEL 5	Mechanical Engineering Construction Management			
LEVEL 4	Mechanical Engineering Management			
LEVEL 3	Mechanical Engineering Supervision			
LEVEL 2	Mechanical Engineering Operations			
LEVEL 1	Embed into Level 2			

Table 53 : Occupational Area Structure (OAS) for Electrical Engineering

SECTOR	BUILDING & CONSTRUCTION			
SUB SECTOR	MECHANICAL & ELECTRICAL ENGINEERING (ELECTRICAL)			
AREA	CONSTRUCTION			
JOB AREA	HVAC	PLUMBING	INFRASTRUCTURE	FIRE PROTECTION
LEVEL 8	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level
LEVEL 5	Electrical Engineering Construction Management			
LEVEL 4	Electrical Engineering Construction Management			
LEVEL 3	Electrical Engineering Construction Supervision			
LEVEL 2	Electrical Engineering Operations			
LEVEL 1	Electrical Engineering Operations			

Table 54 : Occupational Area Structure (OAS) for Facility Management

SECTOR	BUILDING & CONSTRUCTION				
SUB SECTOR	FACILITY MAINTENANCE				
AREA	POST CONSTRUCTION				
JOB AREA	MECHANICAL	ELECTRICAL	AUTOMATION	PIPING	CIVIL
LEVEL 8	No Level	No Level	No Level	No Level	No Level
LEVEL 7	No Level	No Level	No Level	No Level	No Level
LEVEL 6	No Level	No Level	No Level	No Level	No Level
LEVEL 5	Facility Maintenance Management				
LEVEL 4	Facility Maintenance Administration				
LEVEL 3	Facility Maintenance Supervision				
LEVEL 2	Mechanical Operation	Electrical/Automation Services		Piping Operations	Civil Operations
LEVEL 1	Mechanical Operation	Electrical/ Automation Operations		Piping Operations	Civil Operations

4.6 List of Critical Job Titles and Summary of Job Titles

Item	Critical Job Title	Short Term (1-3 years) (v)	Medium Term (4-5 years) (v)
1	Building Surveyor		√ - ***
2	Assistant Building Surveyor		√ - ***
3	Technician Building Surveyor		√ - ***
4	Resident Architecture		√ - **
5	Architecture Designer		√ - **
6	Senior Architecture Draughtsman		√ - **
7	Civil & Structure Resident Engineer		√ - **
8	Civil & Structure Principal Engineer		√ - **
9	Civil & Structure Assistant Resident Engineer		√ - **
10	Civil & Structure Senior Draughtsman		√ - **
11	Civil & Structure Assistant Engineer		√ - **
12	Project Manager		√ - **
13	Utility Surveyor		√ - ***
14	Photogrammetrist		√ - ***
15	Hydrographic Surveyor		√ - ***
16	Remote Sensing Engineer		√ - **
17	GIS Engineer		√ - **
18	Assistant Utility Surveyor		√ - **
19	Assistant Photogrammetrist		√ - **
20	Junior Hydrographic Surveyor	√ - *	
21	Remote Sensing Assistant Engineer	√ - *	
22	GIS Assistant Engineer	√ - *	
23	GIS Technician	√ - *	
24	Safety Manager		√ - **
25	Safety Officer/Environment		√ - ***
25	Traffic Management Officer	√ - *	
26	Production Manager		√ - ***/**
27	Design Coordinator		√ - ***

Item	Critical Job Title	Short Term (1-3 years) (v)	Medium Term (4-5 years) (v)
28	IBS Manufacturing Supervisor		√ - **
30	IBS Manufacturing Line Technician		√ - **
31	IBS Installation Manager		√ - ***
32	IBS Installation Specialist		√ - ***
33	IBS Installation Supervisor		√ - ***
34	IBS Installer		√ - ***
35	Plant Director		√ - ***
36	Plant Manager		√ - ***
37	Assistant Plant Manager		√ - ***
38	Plant Executive/Coordinator		√ - ***
39	Crane Rigger		√ - ***
40	Tower Crane Operator		√ - **
41	Crawler Crane Operator		√ - **
42	Mobil Crane Operator		√ - **
43	Bulldozer Operator		√ - **
44	Wheel Loader Operator		√ - **
45	Excavator Operator		√ - **
46	Dump Truck Operator		√ - **
47	Backhoe Loader Operator		√ - **
48	Back Pusher Operator		√ - **
49	Paver Compactor Operator		√ - **
50	Assistant Crane Rigger		√ - **
51	Tower Crane Signalman		√ - **
52	Crawler Crane Signalman		√ - **
53	Mobile Crane Signalman		√ - **
54	Placing Boom Operator		√ - **
55	Concrete Pump Operator		√ - **
56	Passenger Hoisting Operator		√ - **
57	Generator Set Operator		√ - **

Item	Critical Job Title	Short Term (1-3 years) (v)	Medium Term (4-5 years) (v)
58	Air Compressor Operator		√ - **
59	Bar Bender/Cutter Operator		√ - **
60	Gondola Operator		√ - **
61	Asphalts Paver Operator		√ - **
62	Tandem Roller Operator		√ - **
63	Tire Roller Operator		√ - **
64	Vibration Roller Operator		√ - **
65	Milling Machine Operator		√ - **
66	Skid Steer Loader Operator		√ - **
67	Asphalts Paver Chainman		√ - **
68	Workshop Manager		√ - ***
69	Assistant Workshop Manager		√ - ***
70	Foreman		√ - ***
71	Straddle Carrier Operator		√ - **
72	Segmental Launcher Operator		√ - **
73	Piling Operator		√ - **
74	Boring Machine Operator		√ - **
75	Tunneling Machine Operator		√ - **
76	PVD Machine Operator		√ - **
77	Pipe Layer Machine Operator		√ - **
78	Micro Machine Operator		√ - **
79	Low Loader Operator		√ - **
80	Lorry Cargo Operator		√ - **
81	Lorry Crane Operator		√ - **
82	Sky lift Operator		√ - **
83	Construction Workshop Mechanic		√ - **
84	Segmental Launcher Signalman		√ - **
85	Earth Moving Plant Operator (EMPO)		√ - **
86	Civil Engineer		√ - **

Item	Critical Job Title	Short Term (1-3 years) (v)	Medium Term (4-5 years) (v)
87	Geo Technician		√ - ***
88	Authorized Gas Tester (Sewerage)		√ - **
89	Instrumentation/Secada/Telemetry Installation		√ - ***
90	Blasting Specialist		√ - **
91	Soil Improvement Installation		√ - **
92	Welder	√ - *	
93	Fence & Gate Installer		√ - **
94	Steel Worker		√ - **
95	Construction Manager		√ - ***
96	Assistant Project Manager		√ - **
97	Cladding Installer		√ - **
98	Aluminum & Glazing	√ - *	
99	Louvre Manager		√ - **
100	Interior Decorator		√ - **
101	Mechanical Engineer Manager		√ - ***
102	Mechanical Engineer		√ - ***
103	Mechanical Engineering Supervisor		√ - **
104	Mechanical Engineering Technician	√ - *	
105	Electrical Engineer Manager		√ - **
106	Electrical Engineer		√ - **
107	Electrical Engineering Supervisor		√ - **
108	Electrical Engineering Technician	√ - *	
109	Traffic Management Officer		√ - **
110	Environmental Officer (EO)		√ - ***
111	Site Safety Supervisor	√ - *	
112	Traffic Management Officer Assistant	√ - *	
113	EO Assistant	√ - *	
114	Facility Maintenance Manager		√ - ***
115	Facility Maintenance Executive	√ - *	
116	Facility Maintenance Supervisor	√ - *	

Summary of Critical Job Titles for Building & Construction Industry

SECTOR	SUB-SECTOR	LEVEL								TOTAL OF CRITICAL JOB TITLES	TOTAL OF JOB TITLES IDENTIFIED
		L1	L2	L3	L4	L5	L6	L7	L8		
Building & Construction	Town & Country Planning	-	-	-	-	-	-	-	-	Not available	6
	Building Survey	-	-	1	1	1	-	-	-	3	4
	Architecture	-	4	1	4	2	-	-	-	11	32
	Civil & Structure	-	13	1	5	5	-	-	-	24	111
	Quantity Survey	-	-	-	-	-	-	-	-	Not Available	6
	Land Survey & Geomatics	-	-	1	5	7	-	-	-	13	21
	Mechanical & Electrical	-	2	2	2	2	-	-	-	8	17
	Landscape & Architecture	-	-	-	-	-	-	-	-	Not Available	7
	Safety, Health & Environment	-	-	3	5	2	-	-	-	10	18
	Industrial Building System (IBS)	-	16	16	16	16	-	-	-	64	72
	Construction Machinery Plant & Operation	6	37	4	4	4	3	-	-	58	60
	Building Materials	-	-	-	-	-	-	-	-	Not Available	10
	Facility Maintenance	-	-	1	1	1	-	-	-	3	12
TOTAL OF CRITICAL JOB TITLES		6	72	30	43	40	3	-	-	194	-
TOTAL OF JOB TITLES IDENTIFIED		23	138	99	60	53	3	-	-	-	376

4.7 Conclusion

In the light of recent economic development of the Building & Construction industry, the demand for sufficient skilled personnel has increased and the development of skilled manpower is timely. By going through the mechanism provided by the Skills Training system in Malaysia, one of the important steps is to identify the Occupational Structure and Occupational Analysis Structure of this sector. With the Occupational Structure and Occupational Analysis Structure clearly defined together with the most critical job titles, the industry stake holders will be able to identify areas that will require more intensive efforts in human capital development. Although there have been past efforts in National Standards Development for the industry, the need for an OA/OAS is required to determine the overall areas that may not yet have been focused on. We can assume that the OA/OAS to be a 'blueprint' of the manpower planning for the Building & Construction sector.

5. CONCLUSION & RECOMMENDATION

5.1 Introduction

The building and construction industry refers to the eco-system of construction that includes contractors, projects managers, technology providers, and advisory services, as well as the development of residential, commercial and industrial construction projects. Largely led by the private sector, the public sector plays a role in terms of industry development, policies and enforcement, as well as incentives and promotions. The building and construction industry cuts across both the social infrastructure and government initiative markets, as the supporting pillar of such developments.

In a news report dated March 16, 2011, Master Builders Association Malaysia said there is an acute shortage of skilled workers in the construction industry and this could jeopardize government projects under the 10th Malaysia Plan and the Economic Transformation. However in Eleventh Malaysia Plan, focus on the TVET programmes

will be considered as a booster for the next 5 years sector development and as support in line.

5.2 Conclusion

The Building & Construction industry is under a constant pressure to improve its performance. As in the conventional construction which is a common practice in Malaysia, reinforced concrete frame and brick, beam, column, wall and roof are cast in situ using timber framework while steel reinforcement is fabricated offsite. This method is labour intensive involving formwork fabrication, steel bending and concreting. It requires many wet trades on site such as skill carpenters, plasterers and brick workers. The process can hamper by quality issue, unfavorable site condition, skilled labour shortage and bad weather conditions. Malaysian construction industry is also struggle to cope with the influx of foreign labour doing manual jobs in construction. Local people since reluctant to work in this sector due to minimum wage structure, bad image and 3D syndrome (Dirty, Difficult and Dangerous) In general, the number of foreign workers in Malaysia has increased from an estimated 0.5 million in 1984 to 0.63 million in 1997, 2.4 million in 1998, 1.9 million in 2006, and an estimated 2.2 million in 2008 out of 28 million total population and 8 million total workforce. CIDB had reported that 69% (552,000) out of total 800,000 of registered workers as in June 2007 are foreign workers (CIDB, 2007). It was a huge number which distress the stability and growth of domestic economy and created social problems. The current state of the construction industry using conventional method and wet trades is also not in line with the government agenda to construct 4,964,560 unit houses built between the periods of 1995 to 2020 with 709,400 units to be constructed in the period of 2005-2010 (CIDB, 2006). The industry need to react quickly to these issues and to modernize within the capacity and knowledge acquired.

The implementation of construction projects using skilled construction workers would certainly enhance the productivity of the construction industry and the quality of workmanship. However in Malaysia, foreign construction workers that enter the country are mostly unskilled workers. In order to migrate to more productive technologies and efficient method of construction, the CIDB is empowered to firstly

accredit the skills of foreign workers and secondly, to enhance the skill of local construction workers through training, accreditation and certification under Section 4(1) (k) Act 520.

In fulfilling the objective of enhancing skills of construction workers, CIDB has established 6 training centres known as the Malaysia Construction Academy or Akademi Binaan Malaysia (ABM). Over and above this, CIDB has also accredited 40 private training centres. All these training centres provide skills training to both existing construction personnel and new workers. Besides providing training, these training centres also undertake the exercise of accreditation and certification of construction workers. Over time with training, accreditation and certification, it is expected that the overall quality of workmanship and productivity of the construction industry will be enhanced, site accidents reduced and most importantly the supply of skilled construction workers improved. Offering construction training modules in 60 trades, in 2013 the ABM produces 22,864 trained construction workers; 21,879 in skill trades; 842 in supervisory and; 143 in management. The number of construction workers trained increases annually. Training at ABM focuses on high end specialized trades that is market driven such as scaffold erection, welding, wireman, charge man, fitting/insulation, blasting and painting, nondestructive testing, crane operation and; plant operation which has the potential to raise the trainees' employability towards earning high income. In enhancing the quality of training, CIDB continuously upgrades its training facilities by providing it with the latest equipment and machineries such as simulator machines for welding and crane operations. At the same time, CIDB continues to collaborate with the industry and selected training institutes to plan and implement new training schemes.

Quality issues in construction workmanship are known to be caused by workers who are unskilled and incompetent. Prior to the amendment of the CIDB Act, the number of accredited and certified skilled local and foreign construction workers is not encouraging. Realizing that accreditation can be an important tool in improving the number of skilled and competent construction workers, the CIDB Act 520 (Amended

2011) has incorporated requirements for mandatory accreditation and certification of construction personnel covering semi and skilled workers, site supervisors and project managers both local and foreign. 62 trades have been identified for the accreditation and certification of skilled construction workers and construction site supervisors. Gradually, only skilled construction workers will be allowed to perform skilled works at construction sites, thus fulfilling the government's aspiration to raise the quality of workmanship in construction projects. Apart from the 62 trades that have been identified, the CIDB encourages skilled workers in other trades to be accredited. For this exercise, the Certificate of Skill Competency or Sijil Kecekapan Kemahiran (SKK) will be issued to local workers and the Testimonial of Skilled Foreign Worker or Perakuan Kemahiran Pekerja Asing (PKPA) will be issued if they are foreign workers. In 2013, a total of 9,961 construction workers were accredited by the CIDB. Of these, 95% were local workers while the rest were foreign workers.

5.3 Recommendation

The construction sector is a labour-intensive industry that relies heavily on human capital. Although there are many productivity enhancers within the construction industry worldwide, Malaysia does not yet utilize most of these time-saving systems as the implementation of these methods comes at a prohibitive cost; obtaining higher grade technology requires significant capital investment, while workers skilled at using these systems are in short supply in Malaysia and are therefore expensive to hire when available. The sector faces a distinct lack of scaffolding experts and professional engineers, including the certified IBS (Industrialised Building Systems) designers necessary for the successful implementation of these building methods.

Malaysian contractors still favours a low-cost business framework. This is why construction companies tend to hire unskilled foreign labourers willing to work in intensive, difficult conditions for low pay. Workers are required to pass the Foreign Personnel Skills Recognition (PKPA) competency test administered by the CIDB in order to stay within the country. As many labourers fail this test, turnover is high as the

maximum stay period for unaccredited workers is five years. The accreditation of workers is a costly, lengthy affair, so most companies simply choose to hire new workers instead of retaining their current workforce. Workers with skills learnt on the job are replaced by new workers without experience; these new workers must then go through the same slow process of learning on the job. The result of this is a sector abundant with low-skill laborers. Low-cost labour also depresses the paygrades for skilled construction workers in Malaysia, making the sector unattractive to locals. The few Malaysians that do train to become builders invariably choose to work overseas in places like Taiwan and Japan rather than seek employment locally. This lack of widespread skilled talent makes construction methods such as IBS harder to implement. The fault is not entirely that of the construction companies. With the sector traditionally competing to offer the lowest prices in the market to secure prominent deals, many companies gain a minimal profit margin. The result of this is a lack of funds for further investment into the hiring of skilled workers or the purchase and installation of better technologies and systems. As the world looks beyond low-cost labour and moves on towards favoring quality labour systems, it is hoped that a similar change will be effected in Malaysia's construction sector.

Policymakers and industry players can work together to help drive changes in the construction sector, with both short- and long-term plans. The long-term goals of the construction sector are best addressed at the policy level, and the recommendations suggested are made with the understanding that they will take years to implement. Short-term recommendations, however, can be implemented within businesses or on-going projects for immediate effect, as they do not involve any regulatory approval and only require organizations with a firm commitment to change.

- i. Engaging third-party professionals to conduct regular, stringent site inspections. These third party assessments should evaluate projects in progress according to recognized quality control standards and determine build quality both internally and externally. This will spur construction companies to use

high-skilled labour instead of low-skilled labour as they will want to ensure tasks are executed correctly the first time.

- ii. Procuring higher quality materials and requiring sub-contractor workers to be trained in their correct application and use. This provides an incentive to construction companies to invest in long-term skill development for their workforce and offer higher value-added construction methods and systems to clients.
- iii. Using standardized building or automation systems. Standardization can reduce margins of error due to unskilled workmanship, while automation significantly improves on-site safety and reduces costs.
- iv. Requiring that contractors use only certified workers on critical jobs. Building components such as wiring, plumbing, ventilation and air conditioning should be installed by properly trained personnel whose certifications are widely recognized within the industry. In the long run, increasing the employment of certified skilled workers will raise the industry's productivity and enhance its overall competitiveness.

To complement these measures carried out by property developers, construction companies can implement structured apprenticeship programmes within their organizations to ensure that their employees receive adequate training and experience so that they can become skilled tradesmen sooner rather than later. Structured apprenticeship programmes will:

- i. Facilitate the adoption of internal certification programmes in the absence of formal external certification. Such internal certification programmes provide customers and employers with assurance about the quality of workers that will be used on a project.

- ii. Ensure that all new workers are seconded by at least one experienced worker. This will raise overall product quality and provide the construction company with a larger pool of skilled workers in a shorter period of time.
- iii. Ensure that knowledge and skills are retained within the company. Even if the company loses its more experienced workers when their work permits expire, these junior apprentices will be ready to fill their shoes.

While these short-term measures may bring noticeable results in a very short period of time, the Government and industry regulators must tackle the challenge for long-term restructuring. Many companies in the sector have not yet shifted away from old management mentalities inherited from their predecessors. Government policy should be aimed at promoting permanent changes in the industry's management practices, to bring about a shift from short-term profitability to long-term investments in technology and talent.

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**ANNEX 1: MALAYSIAN OCCUPATIONAL SKILLS
QUALIFICATION FRAMEWORK
(MOSQF) LEVEL DESCRIPTOR**

**MALAYSIAN OCCUPATIONAL SKILLS QUALIFICATION FRAMEWORK (MOSQF) LEVEL
DESCRIPTOR**

Level	Level Description
1	Achievement at this level reflects the ability to use relevant knowledge, skills and procedures to complete routine and predictable tasks that include responsibility for completing tasks and procedures subject to direction or guidance .
2	Achievement at this level reflects the ability to select and use relevant knowledge, ideas , skills and procedures to complete well-defined tasks and address straightforward problem . It includes taking responsibility for completing tasks and procedures, and exercising autonomy and judgment subject to overall direction or guidance.
3	Achievement at this level reflects the ability to identify and use relevant understanding , methods and skills to complete task and address problems that are well defined with a measure of complexity . It includes taking responsibility for initiating and completing tasks and procedures as well as exercising autonomy and judgments within limited parameter . It also reflects awareness of different perspectives or approaches within an area of study or work.
4	Achievement at this level reflects the ability to identify and use relevant understanding, methods and skills to address problems that are well defined but complex and non-routine . It includes taking responsibility for overall courses of action as well as exercising autonomy and judgment within fairly broad parameters. It also reflects under-standing of different perspective or approaches within an area of study or work.
5	Achievement at this level reflects the ability to identify and use relevant understanding, methods and skills to address broadly-defined, complex problems . It includes taking responsibility for planning and developing courses of action as well as exercising autonomy and judgment within broad parameters. It also reflects understanding of different perspectives, approaches or schools of thought and the reasoning behind them .
6	Achievement at this level reflects the ability to refine and use relevant understanding, methods and skills to address complex problems that have limited definition . It includes taking responsibility for planning and developing courses of action that are able to underpin substantial change or development, as well as exercising broad autonomy and judgment . It also reflects an understanding of different perspectives, approaches of schools of thought and the theories that underpin them .

Level	Level Description
7	Achievement at this level reflects the ability to reformulate and use relevant understanding, methodologies and approaches to address problematic situations that involve many interacting factors. It includes taking responsibility for planning and developing courses of action that initiate or underpin substantial change or development, as well as exercising broad autonomy and judgment. It also reflects an understanding of theoretical and relevant methodological perspectives, and how they affect their area of study or work.
8	Achievement at this level reflects the ability to develop original understanding and extend an area of knowledge or professional practice. It reflects the ability to address problematic situations that involve many complexes, interacting factors through initiating, designing and undertaking research, development or strategic activities. It involves the exercise of broad autonomy, judgement and leadership in sharing responsibility for the development of a field of work or knowledge, or for creating substantial professional or organisational change. It also reflects a critical understanding of relevant theoretical and methodological perspectives and how they affect the field of knowledge or work.

ANNEX 2: LIST OF DEVELOPMENT PANEL, FACILITATORS AND PROOFREADER

**LIST OF INDUSTRY PANEL MEMBERS FOR THE BUILDING AND CONSTRUCTION INDUSTRY
OCCUPATIONAL ANALYSIS DEVELOPMENT**

NO	NAME	EXPERTISE	POSITION	ORGANISATION
1	EN. SAZALI BIN ISMAIL	Construction Machinery	General Manager	W&R Construction Sdn Bhd
2	ASSOC. PROF. DR WAN MOHD NAIM BIN WAN MOHD	Geomatics & Land Surveying	Senior Lecturer	Faculty of Architecture, Planning & Surveying (UiTM)
3	LAr. ZAINUDDIN BIN YA	Architectural Draughting	Council Member	Institute of Landscape Architects Malaysia (ILAM)
4	EN. AZHAN AMIR BIN AB KARIM	Geomatics & Land Surveying	Technical Manager	Accent Geosystems Sdn Bhd
5	EN. RIDZUAN BIN ZAINAL ABIDIN	Civil Engineering	Project Engineer	Aecom Perunding Sdn. Bhd
6	EN. MOHD ASRI BIN CHE DAUD	Building Construction	Senior Project Manager	SN Akmida Holdings Sdn Bhd
7	EN. NG WEN BIN	HVACR	Section Head of HVACR	University Kuala Lumpur - Malaysia France Institute
8	EN. MOHD SYARAFI BIN ROHSELI	Construction Safety & Health	Safety Manager cum Project Manager	Ceteau Malaysia Sdn Bhd
9	EN. GHAZALI BIN ISMAIL	Civil Engineering	Managing Director	HCM Engineering Sdn Bhd
10	PN. HASNAH BINTI KAWLAN	Civil Engineering	Managing Director	Perunding Makmur Sdn Bhd
11	EN. SAADON BADRI JUNOH	Building Automation	Manager	Cawangan Dasar dan Pengurusan Korporat JKR Malaysia
12	PN. YUANTI BINTI MOHAMED	Industrialised Building System (IBS)	Manager	IBS Trend Sdn Bhd
13	EN. MUHAMMAD AZALI BIN CHE'OM	Building Maintenance	Training Instructor	Akademi Binaan Malaysia (Wilayah Tengah)
14	EN. MICHAEL MANIYARASU SANJEEVI	Mechanical Engineering	Senior Officer	JKR Putrajaya
15	EN. ARWIN BIN YAC'COB	Building Maintenance	Training Instructor	Akademi Binaan Malaysia (Wilayah Selatan)

**LIST OF FACILITATORS FOR THE EDUCATION & TRAINING SERVICES INDUSTRY
OCCUPATIONAL ANALYSIS DEVELOPMENT**

FACILITATORS

BASHARUDIN BIN MOHAMED

NABLAN BIN YUSOFF

RESEARCHER

ABU MUSA BIN MOHAMAD ISA

SITI HADRAWATI BINTI KASI

MOHD SUHAIMI BIN MOHAMED ARIFFIN

PROOFREADER

ISKANDAR DZULKARNAIN BIN AHMAD JUNID